

## 6.6 Permit Processing/Public Comment

Pursuant to IC 13-15-5-1, the draft NPDES permit for the ArcelorMittal Indiana Harbor, LLC – Indiana Harbor West was made available for public comment from August 15, 2011, through September 30, 2011, as part of Public Notice No. 2011-8F-RD/PH. In addition, a public hearing was held in Gary, Indiana, on September 15, 2011. During the comment period and at the public hearing, comments were received concerning the draft permit. Comments received at the hearing and/or submitted via email, and this Office's corresponding responses, are summarized below. Any changes to the permit and/or fact sheet are so noted below.

### **Mr. Kevin Doyle, Environmental Manager, ArcelorMittal USA LLC submitted the following comments**

#### **Comment 1: WATER QUALITY-BASED EFFLUENT LIMITS (WQBELs)**

ArcelorMittal understands that IDEM used the procedures at 327 IAC 5-2-11.4 and 11.6 to calculate Water Quality Based Effluent Limits for ArcelorMittal outfalls discharging to the Indiana Harbor Ship Canal (IHSC) and constructed a multi-discharger Waste Load Allocation model to ensure that water quality standards are maintained throughout the IHSC and as the IHSC meets Lake Michigan.

IDEM failed to use readily available, reliable site-specific data as part of the Waste Load Allocation model development and this can significantly impact calculation of the WQBELs. Specifically, IDEM failed to use background water-quality data at Dickey Road, and site-specific dissolved and total metals data for calculation of site-specific dissolved metals translators (DMTs). All of these data have historically been collected by IDEM and the failure to use current, scientifically sound site-specific data is unexplainable. Further discussion is presented below.

#### Background Water Quality

In its water quality assessment and development of WQBELs, IDEM determined background water quality using the cumulative allocated loadings from the upstream outfalls in the applicable study area. This is an overly conservative approach that ignores more than ten years of actual in-stream data. Those data reflect the cumulative and collective discharges of all dischargers upstream of Dickey Road. Actual in-stream data for the IHSC were developed by IDEM and are available for the IHC-2 monitoring station at Dickey Road. These data can be used to re-establish background water quality for the ArcelorMittal Indiana Harbor permits based on actual conditions. These data were summarized by ArcelorMittal and previously presented to IDEM.<sup>1</sup> Unexplainably, IDEM did not use these data to establish background water quality for the draft Indiana Harbor permits. Instead, IDEM used the cumulative allocated loadings upstream of this location to determine background water quality for the stream segment downstream of Dickey Road. This approach is impractical because it is not realistic to presume that all upstream dischargers would be discharging at or near their permitted mass loadings simultaneously. Using the actual in-stream data is more appropriate because the data represent actual conditions instead of projected concentrations based upon the presumption of discharges at allocated loadings. IDEM's choice not to use Dickey Road data to establish background concentrations is confusing in light of its comments contained in the supplemental documentation supporting the WLA analysis for the ArcelorMittal Indiana Harbor permits:

*“Developing background concentrations based on actual instream data is consistent with the regulations and accounts for the wastewater treatment that is occurring upstream of the subwatershed. Otherwise, overly conservative requirements can be placed on downstream dischargers.” (pg 17)*

These comments appear to demonstrate that IDEM not only supports, but prefers, the use of actual instream data to establish background water quality, where available. Accordingly, the Dickey Road data must be used to ‘re-establish’ background water quality at the appropriate location in the IHSC for IDEM’s water quality assessment and calculation of QBELs. A comparison of the concentrations used by IDEM at Dickey Road and the actual IHSC concentrations at Dickey Road are presented below for fluoride, lead and zinc.

Comparison of IDEM Predicted Concentrations at Dickey Road to Actual Concentrations		
	IDEM Predicted Concentration at Dickey Road	Actual Concentration at Dickey Road*
Fluoride, mg/l	0.63	0.49
Lead, Total, ug/l	8.5	4.0
Zinc, Total, ug/l	36	25
* Geometric mean of IHC-2 fixed monitoring station data January 2005 to December 2009		

Using Dickey Road data as background concentrations leads to significantly less stringent preliminary QBELs for lead and zinc. ArcelorMittal’s requested effluent limits based on the Dickey Road background data, and other factors, are presented throughout these comments.

#### Dissolved Metals Translators

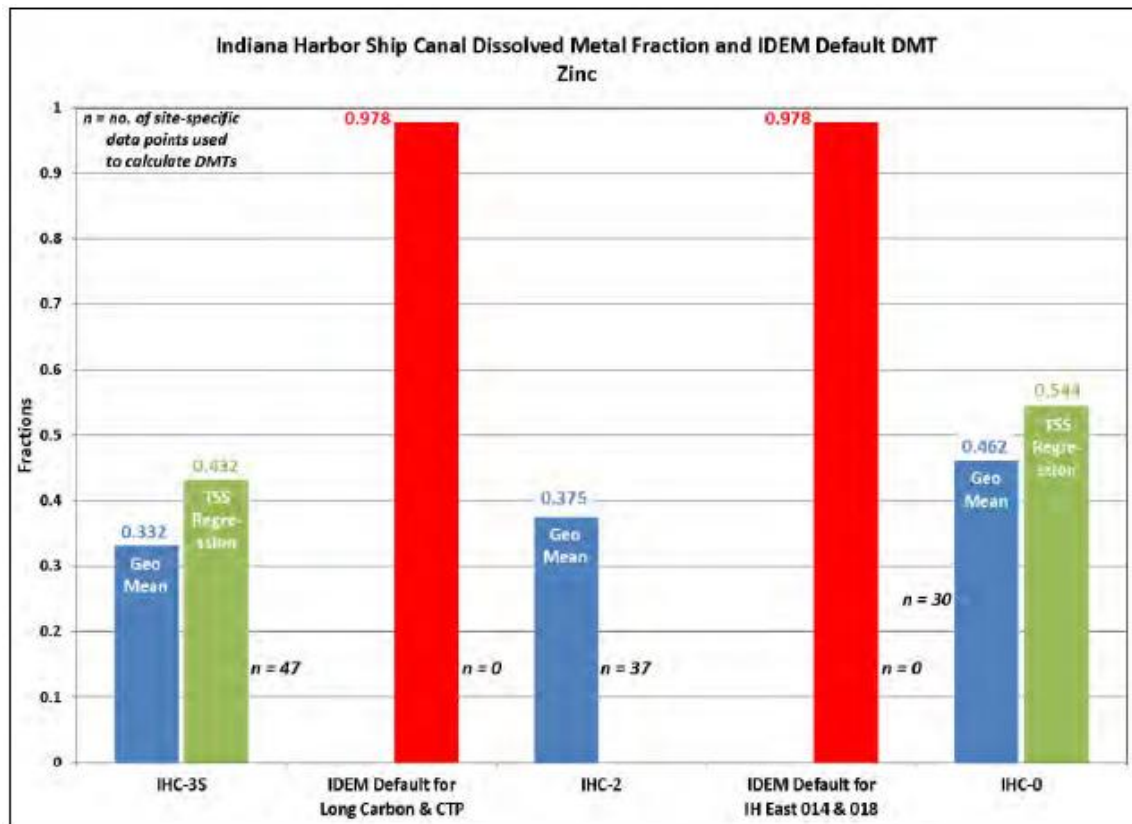
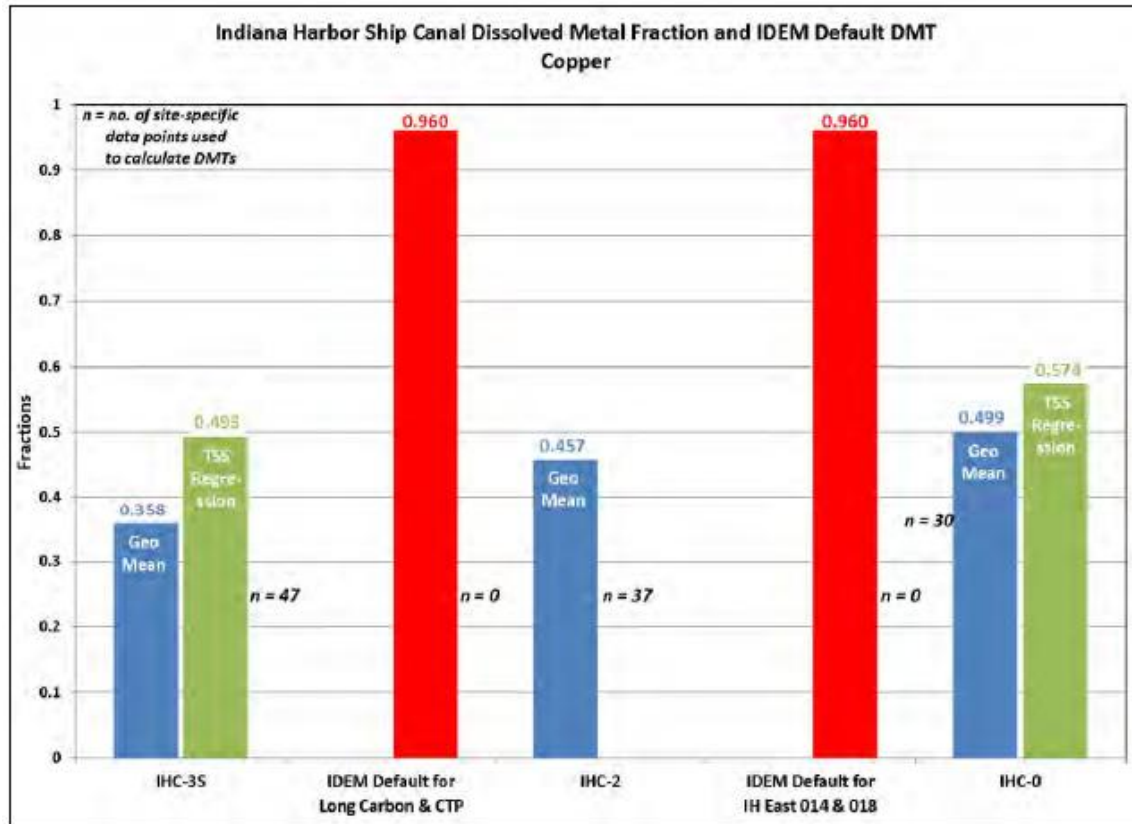
Total and dissolved data for copper, lead and zinc collected by IDEM from the Indiana Harbor Ship Canal at fixed monitoring stations IHC-2 (Dickey Road) and IHC-0 should be used to calculate site-specific dissolved metals translators (DMTs). These DMTs should be used in the calculation of preliminary water-quality based effluent limits for the Central Treatment Plant (CTP) Outfall 001, and Indiana Harbor East Outfall 014. Data collected by IDEM over a period of several years for these metals demonstrate that the majority of the copper, lead and zinc present is associated with particulate in the water column and is not in the dissolved form. Dissolved metals more closely approximate the bioavailable fraction in the water column than do total or total recoverable metals. Consequently, use of site-specific DMTs is well suited for the IHSC. The Dickey Road fixed monitoring station, located downstream of CTP Outfall 001, serves as an appropriate data set for calculating DMTs for development of QBELs for CTP Outfall 001. IDEM should consider the Dickey Road data representative of conditions in the IHSC and reliable because IDEM used the lead and zinc data collected at Dickey Road for another purpose in the NPDES permit renewal process for the ArcelorMittal facilities (*i.e.*, Dickey Road data were used to project the effluent quality from Indiana Harbor West Outfall 007 in IDEM’s multi-discharger WLA). The IHC-0 fixed monitoring station is located downstream of Indiana Harbor East Outfall 014.

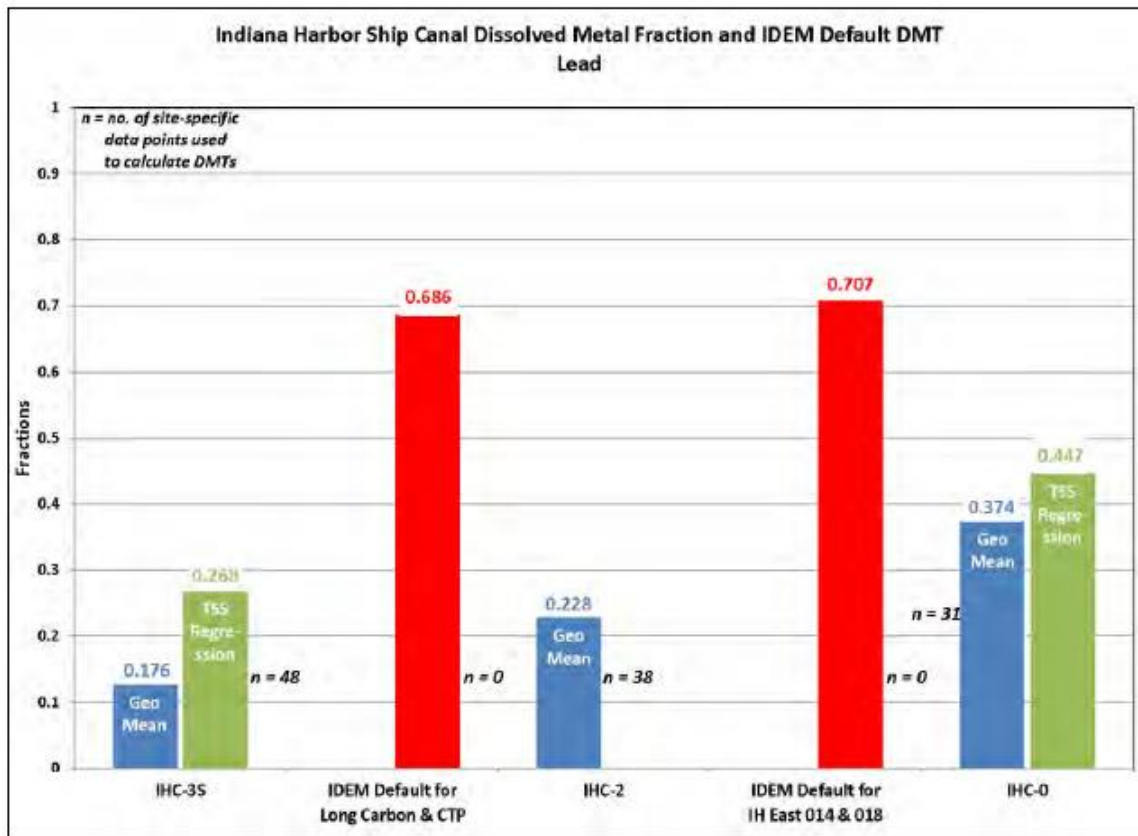
Per EPA guidance<sup>2</sup>, DMTs can be calculated as the dissolved to total metal fraction, and can be calculated from a correlation of the dissolved fraction to receiving stream TSS concentration. Following that guidance, DMTs for copper, lead and zinc were calculated from the Dickey Road and IHC-0 data and are summarized below. The dissolved and total metals data used in the DMT calculations are attached (see Attachment IHC-1). For comparison, IDEM's default translators that were used in the development of the proposed permit limits, and DMT's calculated from data collected by IDEM at fixed Station IHC-3S are also shown.

### Comparison of Indiana Harbor Ship Canal Dissolved Metal Fractions to IDEM Default Translators

	IHC-3S (Columbus Drive)	IDEM Default Translators for IHLC and CTP	IHC-2 (Dickey Road)	IDEM Default Translators for IH East 014 and 018	IHC-0
	1/04 to 6/09	NA	1/04 to 1/08	NA	1/04 to 10/06
Copper					
N	47	0	37	0	30
Geometric Mean	0.358	0.960	0.457	0.960	0.499
DMT by TSS Regression (TSS = 4 mg/l)	0.493		NA		0.574
95th Percentile	0.716		0.629		0.743
Lead					
N	48	0	38	0	31
Geometric Mean	0.176	0.686	0.228	0.707	0.374
DMT by TSS Regression (TSS = 4 mg/l)	0.268		NA		0.447
95th Percentile	0.472		0.415		0.645
Zinc					
N	47	0	37	0	30
Geometric Mean	0.332	0.978	0.375	0.978	0.462
DMT by TSS Regression (TSS = 4 mg/l)	0.432		NA		0.544
95th Percentile	0.635		0.574		0.774

IDEM's default DMTs, which rely on no data specific to the IHSC, are clearly inaccurate for the ArcelorMittal permits and overestimate the dissolved copper, lead and zinc fractions in the IHSC by significant amounts. For example, the default translators are 2.1, 3.0 and 2.6 times greater than the calculated geometric mean of the dissolved fractions for copper, lead and zinc, respectively, at IHC-2. Even the 95<sup>th</sup> percentiles of the dissolved fractions for all metals at all locations are significantly below IDEM's default translators. As shown, the DMTs calculated at IHC-3S, IHC-2 and IHC-0 are considerably lower than IDEM's default DMTs used in the calculation of WQBELs. Graphs of the geometric mean dissolved fractions, TSS-regression developed DMTs, and IDEM's default DMTs are presented below.





Given the data presented in the table and graphs above, it is not reasonable to assume, as IDEM has done through use of the default DMTs, that the dissolved metal fraction in the water column somehow increases dramatically in between the fixed monitoring stations. ArcelorMittal's requested effluent limits, based upon site-specific DMTs derived from the IDEM fixed monitoring station data and other factors, are presented below.

ArcelorMittal Requested Effluent Limits for IH Central Treatment Plant (Copper, Lead and Zinc)								
Pollutant	Requested Outfall 001 Permit Limits				Requested Outfall 101 Permit Limits			
	Concentration (ug/l)		Mass (lbs/day)		Concentration (ug/l)		Mass (lbs/day)	
	Monthly Average	Daily Max.	Monthly Average	Daily Max.	Monthly Average	Daily Max.	Monthly Average	Daily Max.
Copper	47	81	2.5	4.4	Report only	Report Only	Report Only	Report Only
Lead	Report Only	Report Only	Report Only	Report Only	Report Only	Report Only	9.4	19
Zinc	360	720	20	39	Report Only	Report Only	Report Only	Report Only

ArcelorMittal Requested Effluent Limits for IH East Outfall 014 (Lead and Zinc)				
Pollutant	Requested Outfall 014 Permit Limits			
	Concentration (ug/l)		Mass (lbs/day)	
	Monthly Average	Daily Max.	Monthly Average	Daily Max.
Lead	120	240	11.5	23
Zinc	Report only	Report Only	14.91	44.69

#### Comments on Multi-discharger Wasteload Allocation Model

IDEM constructed a multi-discharger wasteload allocation model for ammonia, total residual chlorine, fluoride, sulfate, lead and zinc to ensure that water quality standards are maintained throughout the IHSC and as the IHSC meets Lake Michigan. Comments specific to lead, zinc and fluoride are presented below.

#### *Lead and Zinc*

At the ‘end’ of IDEM’s multi-discharger WLA model (i.e., the end of the IHSC and the beginning of Lake Michigan) IDEM shows a lead concentration of 9.9 ug/l, which is essentially equivalent to the chronic aquatic life water quality criterion. This ‘end-result’ creates the false impression that essentially all assimilative capacity in the IHSC has been consumed. Using more reasonable projected loadings from outfalls at which no WQBELs are warranted in conjunction with “re-establishing” background water quality at Dickey Road and accounting for the requested effluent limits throughout these comments shows that assimilative capacity remains in the IHSC, even when making the unrealistic assumption that all dischargers downstream of Dickey Road are simultaneously discharging at their maximum permitted levels. It is important that IDEM recognize this fact going forward, to avoid the false impression that essentially all assimilative capacity for lead in the IHSC has been consumed. This position could make future permitting of new discharges or expansion at existing dischargers a more difficult task than necessary.

In addition, IDEM significantly overestimated the pollutant loadings from certain ArcelorMittal outfalls in its multi-discharger WLA model. We understand that a WLA for an outfall derived from preliminary effluent limits serves as the input to the model to ensure that water quality standards are maintained. However, where no WQBEL exists, or where none is warranted, IDEM has overestimated pollutant loadings.

For Indiana Harbor Long Carbon, where the draft permit contains no WQBELs for lead and zinc, IDEM estimated discharges of 1.68 lbs/day of lead and 2.94 lbs/day of zinc based upon its default projected effluent quality (PEQ) procedure. However, implementing the projected effluent quality (PEQ) procedures at 327 IAC 5-2-11.5(b)(1)(B)(V), and considering the technology-based effluent limits at Outfall 602, allows for model input wasteload allocation discharges of 0.42 lbs/day lead and 1.38 lbs/day zinc. These wasteload allocations result in preliminary effluent limits which are

greater than the PEQs derived from 327 IAC 5-2-11.5(b)(1)(B)(V), and the Outfall 602 TBELs, and therefore adequately characterize the discharge from Indiana Harbor Long Carbon Outfall 001.

For Indiana Harbor East Outfall 018, IDEM estimated discharges of 6.24 lbs/day of lead based upon WQBELs derived pursuant to 327 IAC 5-2-11.4 and 11.6. However, as stated elsewhere in these comments, there is no reasonable potential to exceed these limits, and they should not be included in the renewal NPDES permit. Implementing the projected effluent quality (PEQ) procedures at 327 IAC 5-2-11.5(b)(1)(B)(V), and considering the technology-based effluent limits at Outfalls 518 and 618, allows a model input discharge of 5.31 lbs/day lead. This wasteload allocation results in preliminary effluent limits of 4.3 lbs/day (monthly average) and 9.0 lbs/day (daily maximum) lead. These values are greater than the PEQs derived from 327 IAC 5-2-11.5(b)(1)(B)(V) and the sum of the Outfall 518 and 618 TBELs, and therefore adequately characterize the discharge from Indiana Harbor East Outfall 018.

Printouts of IDEM's multi-discharger WLA model for lead and zinc that was modified to include Dickey Road data as background, the more accurate discharges from Indiana Harbor Long Carbon Outfall 001 and Indiana Harbor East Outfall 018, and ArcelorMittal's requested effluent limits are attached (see Attachment IHC-2). The results show remaining assimilative capacity throughout the IHSC and at Lake Michigan for lead and zinc.

#### *Fluoride*

IDEM made the same general errors for fluoride in its multi-discharger WLA model, as it did for lead and zinc. Namely, the discharges from certain ArcelorMittal outfalls are overestimated and IDEM did not 'reestablish' background fluoride concentrations at Dickey Road. A simplified mass balance accounting for Dickey Road data and discharges from Indiana Harbor East and West is presented in other comments. The results show minimal effect on the concentration of fluoride where the IHSC meets Lake Michigan.

<sup>1</sup> *Grand Calumet River, Indiana Harbor Water Quality Assessment, Lake Michigan Potable Intake Water Quality and Potential Impacts of ArcelorMittal Indiana Harbor East and West Plants*. Prepared for ArcelorMittal USA, Environmental Affairs, Richfield, Ohio, prepared by Amendola Engineering, Inc., Lakewood, Ohio. June 6, 2008, Water Quality Update April 2, 2009.

<sup>2</sup> *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit From a Dissolved Criterion*, USEPA, June 1996

#### Response 1: **Water Quality-Based Effluent Limitations**

##### Background Water Quality

An explanation of the development of wasteload allocations including the calculation of background concentrations is included in the Fact Sheet of each permit. IDEM has historically developed wasteload allocations in the Grand Calumet River watershed by assigning wasteload allocations to point source discharges and using these wasteload allocations in the calculation of background concentrations for downstream dischargers. In the current modeling effort, IDEM decided to divide the Grand Calumet River watershed into three subwatersheds for the development of wasteload allocations. The ArcelorMittal discharges are located in the Indiana Harbor Canal/Lake George Canal/Indiana Harbor subwatershed which has as its headwaters the combined flow of the

East Branch and West Branch subwatersheds. The background concentrations for the Indiana Harbor Canal/Lake George Canal/Indiana Harbor subwatershed were not based on the accumulated wasteload allocations of the East Branch and West Branch subwatershed discharges, but were re-established using data collected at IDEM fixed station IHC-3S on the Indiana Harbor Canal at Columbus Avenue which is upstream of all point source discharges in the subwatershed. The Indiana Harbor Canal is subject to reverse flows as documented by U.S. Geological Survey (USGS) stream flow gage 04092750 at Canal Street. IDEM fixed station IHC-2 at Dickey Road is located about 0.6 miles downstream of the USGS gage at Canal Street and is more susceptible to reverse flows and dilution by Lake Michigan waters than IDEM fixed station IHC-3S which is located about 0.7 miles upstream of Canal Street. Under 327 IAC 5-2-11.4(a)(8), IDEM is required to use best professional judgment when determining what available data are acceptable for determining background. IDEM does not believe that it is acceptable to use data collected at fixed station IHC-2 to re-establish the background concentration at Dickey Road due to the documented reverse flows at Canal Street and the potential for samples collected at fixed station IHC-2 to be of downstream waters flowing upstream.

#### Dissolved Metals Translators

Indiana regulation under 327 IAC 5-2-11.4(c)(8) specifies the procedure for calculating wasteload allocations for metals with aquatic life criteria expressed in the form of dissolved metal. Under this regulation, unless a site-specific metals translator is developed, the metals translator is set equal to the default metals translator listed in the rule which is the criteria conversion factor used to derive the dissolved metal criterion. Default metals translators are established in this regulation for copper and zinc which also have aquatic life criteria established under 327 IAC 2-1.5-8. Default metals translators for lead are not established under 5-2-11.4(a)(8) because aquatic life criteria for lead were derived using the methodologies under 2-1.5-11 after 2-1.5-8 was promulgated. To be consistent with 5-2-11.4(c)(8), IDEM also applied the criteria conversion factor as the default metals translator for lead. Under 5-2-11.4(c)(8), a discharger may request the use of an alternate metals translator using site-specific data. The discharger must conduct a site-specific study to identify the ratio of the dissolved fraction to the total recoverable fraction outside the mixing zone and submit the study to IDEM to determine if it is acceptable. ArcelorMittal did request in letters dated June 6, 2011 and June 28, 2011 that IDEM use dissolved and total recoverable data collected by IDEM at Dickey Road (fixed station IHC-2) to develop metals translators for lead and zinc. However, a site-specific study conducted by ArcelorMittal was not submitted prior to the public notice of the draft permit. In their comments on the draft permit, ArcelorMittal submitted summarized total recoverable and dissolved metal data collected at IDEM fixed stations IHC-2 and IHC-0 for copper, lead and zinc along with metals translators calculated using the data. IDEM fixed station IHC-0 is in the vicinity of ArcelorMittal West Outfall 011 and may be within the mixing zone of this outfall which would make data collected at this location unacceptable for developing a metals translator under 5-2-11.4(c)(8). IDEM data collected at fixed station IHC-2 may be acceptable for developing metals translators and could be utilized as part of a site-specific study. Regardless, IDEM did not receive a site-specific study from ArcelorMittal and proceeded to calculate wasteload allocations for copper, lead and zinc using default metals translators as required under 5-2-11.4(a)(8).



Multi-discharger Wasteload Allocation Model:  
*Lead and Zinc*

Lake Michigan water quality criteria must be met at the interface of the Indiana Harbor and Lake Michigan. Therefore, wasteload allocations for discharges in the Indiana Harbor Canal/Lake George Canal/ Indiana Harbor subwatershed must be allocated in a manner to ensure that Lake Michigan criteria are met at the end of the subwatershed. The multi-discharger model provides a means to ensure that Lake Michigan criteria are met during critical stream conditions for conservative pollutants. The model can be refined in the future based on revised outfall allocations, discharge flows and background concentrations. If a site-specific metals translator study is conducted and approved, it may be possible to increase the water quality targets (the applicable dissolved metal criteria divided by the metals translator) for lead and zinc in the subwatershed and in Lake Michigan, providing more assimilative capacity.

As noted in a prior response, IDEM does not believe it is acceptable to re-establish background at Dickey Road and has not received a site-specific metals translator study so the current multi-discharger model was not revised. IDEM did look at the impact of lowering the ArcelorMittal Long Carbon allocation, as requested, and did not find a significant impact on the calculation of downstream WQBELs. For future wasteload allocation considerations, a site-specific metals translator along with more refined effluent concentration characteristics will provide the greatest means of showing that more assimilative capacity is available than currently modeled.

Comment 2: **COMPLIANCE SCHEDULES FOR NEW WATER QUALITY-BASED EFFLUENT LIMITS**

The draft NPDES permits for each of ArcelorMittal's Indiana Harbor plants contain new water quality based effluent limits for mercury and other pollutants. There are only limited available intake and effluent data that suggest the intake and effluent concentrations at each facility are within the same range, meaning process wastewater and non-cooling water discharges may not be sources or not significant sources of these pollutants. In addition, additional monitoring in all cases is required in order to capture the variability in discharges of these pollutants in order to evaluate compliance with the proposed limits. As a result, ArcelorMittal requests 54-month compliance schedules for every new WQBEL in each permit. This will provide sufficient time to develop statistically significant databases, determine if there are any controllable sources and implement best management practices or other control strategies. ArcelorMittal requests that the 54-month compliance schedule provisions included in the ArcelorMittal Burns Harbor NPDES Permit (No. IN0000175) be used as a guide. We believe the limited available intake and effluent data for these facilities are not sufficient to establish WQBELs, to determine that the Indiana Harbor facilities are actual sources, or to advise facility management on whether the proposed new WQBELs can be achieved on a consistent basis. If one or more outfalls are determined to not be in compliance with one or more of the new WQBELs, then a 54-month compliance schedule will be necessary to evaluate potential options to address the source(s).

Response 2: For each pollutant receiving TBELs at an internal outfall, and for which water quality criteria or values exist or can be developed, concentration and corresponding mass-based WQBELs were calculated at the corresponding final outfall. The WQBELs were set

equal to the applicable PELs from the multi-discharger model or the outfall specific spreadsheet. The mass-based QBELs were then compared to the calculated mass-based TBELs. If the mass-based TBELs exceed the mass-based QBELs at the final outfall, the pollutant may be discharged at a level that will cause an excursion above a numeric water quality criterion or value under 2-1.5 and QBELs are required for that pollutant at the final outfall. Except for mercury, this was the case for each QBEL applied at a final outfall. Therefore, QBELs are required for these pollutants regardless of the results of the reasonable potential statistical procedure. However, the results of the reasonable potential statistical procedure were used to help establish the monitoring frequency.

Using the EPA memo dated May 10, 2007 on Compliance Schedules for Water Quality Based Effluent Limits in NPDES Permits as guidance, in order to grant a compliance schedule in an NPDES permit, the permitting authority has to make a reasonable finding, adequately supported by the administrative record, that the discharger cannot immediately comply with the QBEL upon the effective date of the permit [40 CFR § 122.47, 122.47(a)(1)]. In considering ArcelorMittal's request, IDEM reviewed previously submitted data for the new water quality based effluent limits, RPE analyses, and internal technology based effluent limits as noted above. Based on that review, it was determined that in instances where the permittee appears to be capable of meeting new water quality based effluent limits upon permit issuance, the permittee is not eligible for schedules of compliance for those parameters at that outfall.

**Comment 3: MONITORING WAIVERS NAPHTHALENE AND TETRACHLOROETHYLENE**

The draft NPDES permits for Indiana Harbor West (Outfall 211, p. 19 of 77) and Indiana Harbor Central Treatment Plant (Outfall 101, p. 6 of 59) contain the following footnote regarding ArcelorMittal's request for monitoring waivers for naphthalene and tetrachloroethylene under 40 CFR §122.44(a)(2):

*At the end of a twelve month sampling period, the permittee may request in writing, a review of these monitoring requirements. Upon review by IDEM, the permit may be modified, after public notice and for hearing, to reduce or delete the monitoring requirements.*

ArcelorMittal requests the respective footnotes for Indiana Harbor West and Indiana Central Treatment Plant be modified as follows, and that the following footnote be added for the proposed naphthalene and tetrachloroethylene monitoring requirements for Outfall 014 at Indiana Harbor East:

*At the end of a twelve month sampling period, the permittee may request in writing, a review of these monitoring requirements pursuant to 40 CFR §122.44(a)(2). Upon review by IDEM, the permit may be modified, after public notice and for hearing, to reduce or delete the monitoring requirements.*

**Response 3:** IDEM agrees to the above request. However, this provision is being moved to the reopening provisions identified in Part I.J.8 of the permit. The additional reference to 40 CFR 122.44(a)(2) has been added in the Indiana Harbor West and Indiana Harbor Central Treatment Plant. The reopening provisions now states:

...to review the monitoring requirements pursuant to 40 CFR 122.44(a)(2). The permittee may request, in writing, a review of categorical monitoring requirements. Upon review by IDEM, the permit may be modified, to reduce or delete the monitoring requirements.

**Comment 4: TEMPERATURE AND THERMAL LOAD MONITORING AND REPORTING**

The draft NPDES permits for ArcelorMittal's Indiana Harbor plants: IH East, IH Long Carbon, IH West and IH Central Treatment Plant, contain twice per week temperature monitoring requirements and associated net thermal discharge loading reporting requirements for external outfalls discharging to the Indiana Harbor Ship Canal and Indiana Harbor. In the Fact Sheets for the NPDES permits, IDEM acknowledges that thermal discharges from the Indiana Harbor Plants do not pose a reasonable potential to exceed water quality standards for temperature. The reasonable potential evaluation is based on the results of instream sampling and a multi-discharger thermal model (see, for example, p. 32 of the Fact Sheet and pages 14 and 15 of Appendix A of the Fact Sheet for the draft IH West permit). The model results have been confirmed by studies that were conducted by Inland Steel and Ispat-Inland during 1997 and 1998 (see Attachment A below). Nonetheless, IDEM has determined that temperature and thermal loadings are pollutants of concern and has proposed the above-mentioned monitoring requirements, citing 327 IAC 5-2-11.5(e). ArcelorMittal disagrees with that determination.

In light of IDEM's finding that there is no reasonable potential to exceed the water quality standards for temperature within the Indiana Harbor Ship Canal and Indiana Harbor, the proposed temperature monitoring requirements and thermal discharge loading reporting requirements pose an unnecessary burden on these four facilities. While there is no particular Commissioner substantiation or rationale required by 327 IAC 5-2-11.5(e), that language was originally placed in the rule to allow monitoring based on situations where there is limited data and some evidence that there may be environmental harm. In this instance, there are sufficient data and historical documentation that the thermal discharges from these four facilities have neither caused exceedances of the temperature water criteria nor adversely impacted any biological species. These monitoring and reporting requirements are only monitoring for the sake of monitoring that will provide no useful direct information or data to assess compliance with ambient water quality standards. Therefore, these thermal monitoring and reporting requirements should be removed from the permits.

ArcelorMittal is willing to offer a periodic study approach that will provide definitive data to determine thermal discharge loadings from the Indiana Harbor Plants and definitive data to assess compliance with ambient Indiana water quality standards for temperature in the Indiana Harbor Ship Canal and Indiana Harbor. Following is the suggested language to be included in the permits as a replacement for the thermal monitoring and reporting requirements.

*“Not later than 90 days after issuance of this permit, the permittee shall submit to IDEM a quality assurance project plan (QAPP) for thermal load and in-stream temperature monitoring studies to be conducted during warm weather months twice during the term of the NPDES permit (second and fourth years). The studies shall include thermal load determinations for all ArcelorMittal facilities discharging to the Indiana Harbor Ship Canal and Indiana Harbor, and*

*sufficient concurrent in-stream temperature measurements to assess compliance with Indiana water quality standards for temperature. IDEM will provide comments within 45 days of receipt of the proposed studies. If IDEM does not provide comments within 45 days, the permittee shall conduct the studies as proposed.”*

This special condition should be included in each NPDES permit for ArcelorMittal’s Indiana Harbor NPDES permits and the outfall and intake temperature monitoring requirements and the associated thermal discharge reporting requirements should be removed.

Finally, as discussed previously with IDEM, ArcelorMittal routinely measures intake and effluent temperatures early in the morning of each monitoring day, typically before 8:00 AM when 24-hour composite samplers are serviced. Sample collection and temperature measurements are conducted using contract resources. Any requirement for conducting temperature measurements during the midafternoon would require dispatching sampling crews for additional hours at additional expense, for no perceived environmental benefit.

Response 4: A discussion of the thermal analysis is included in the Fact Sheet of each permit. Indiana has water quality criteria for temperature that apply each month of the year and monitoring requirements for thermal discharges must be designed to protect the receiving stream on a year round basis. IDEM developed a conservative, dilution only model to determine if any ArcelorMittal outfall has a reasonable potential to exceed for temperature for any month of the year. While long-term data are available for ArcelorMittal East and ArcelorMittal Long Carbon, limited data are available for ArcelorMittal Central WWTP and ArcelorMittal West. ArcelorMittal Central WWTP and ArcelorMittal West have not been required to conduct routine temperature monitoring since the permit was renewed in 1986. Data from July 1999 and April 2000 are available from Grand Calumet River TMDL sampling and permit application data are also available. The available data show that ArcelorMittal West Outfall 009 is the warmest of all the ArcelorMittal outfalls and discharge flow from Outfall 009 can increase significantly during summer months. As noted in the Fact Sheet of the ArcelorMittal West permit, actual effluent data for January and February are required to make a reasonable potential determination for Outfalls 009, 010 and 011 due to the absence of effluent data for these months. The thermal load and instream temperature monitoring studies requested by ArcelorMittal in place of routine outfall monitoring do not include winter months. The requested studies may also not capture worst case summer conditions since only two studies are proposed over five years. Therefore, IDEM believes that a conservative model and long-term seasonal outfall monitoring provide a reasonable means to screen the ArcelorMittal discharges for potential water quality impacts. The frequency of sampling and the requirement for only grab samples were also established to be consistent with the collection of other required outfall data.

In regards to the footnote dictating at what time temperature samples must be collected, additional language has been added. The facility now has the option of either sampling for temperature at the intakes and outfalls between 12pm and 4pm or installing equipment that will measure the highest temperature reading in a 24-hr. period.

Comment 5: **WHOLE EFFLUENT TOXICITY (WET) MONITORING FREQUENCY**

### Biomonitoring Frequencies

The above-referenced draft NPDES permits contain proposed biomonitoring requirements as follows:

Plant	Outfalls (TUC Thresholds)	Initial Biomonitoring Frequency	Follow-Up Biomonitoring Frequency if No Toxicity Demonstrated with Initial Testing
Indiana Harbor East	014 (10.0) 018 (7.7)	3 consecutive months, 2 species	Quarterly, life of permit; most sensitive species after 3 months with no toxicity
Indiana Harbor Long Carbon	001 (17.3)	3 consecutive months, 2 species	Quarterly, life of permit; most sensitive species after 3 months with no toxicity
Indiana Harbor West	009 (2.2) 011 (5.8) 012 (1.0)	None specified	Quarterly, life of permit; most sensitive species after 3 tests with no toxicity
Indiana Harbor Central Treatment Plant	001 (9.8)	None specified	Quarterly, life of permit; most sensitive species after 3 tests with no toxicity

ArcelorMittal finds the proposed biomonitoring frequencies are inconsistent across the plants and are excessive. In the alternative, ArcelorMittal requests the biomonitoring frequencies be made uniform across the four permits as follows: two species, monthly for three months. If no toxicity is demonstrated, annual monitoring using most sensitive species determined as noted below.

### Most Sensitive Species

The Indiana Harbor East and Long Carbon permits contain the following requirement:

*In the absence of toxicity with either species in the monthly testing for three months in the current tests, sensitive species will be selected based on frequency and failure of whole effluent toxicity tests with one or the other species in the immediate past.*

The Indiana Harbor West and Central Treatment Plant permits contain the following requirement:

*In the absence of toxicity with either species in the initial three (3) tests, sensitive species will be selected based on frequency and failure of whole effluent toxicity tests with one or the other species in the previous toxicity tests.*

ArcelorMittal finds these statements to be somewhat confusing with respect to determining the most sensitive species for subsequent testing after the initial three monthly tests, assuming no toxicity is demonstrated:

*In the absence of toxicity with either species in the initial three (3) monthly tests, the permittee will select the most sensitive species for subsequent testing based on evaluation of the toxicity response from the three (3) monthly tests, or from any prior toxicity tests conducted by the permittee.*

Indiana Harbor West – Outfall (Monitoring Station 012)

As noted in the above table, and as specified in the draft NPDES permit for Indiana Harbor West at Part I.H.f.(2), (p. 52 of 77), the threshold chronic toxicity level for triggering a toxicity reduction evaluation (TRE) is 1.0 TUc. This threshold level is based on IDEM's erroneous determination that Indiana Harbor West No. 2 and 3 water intakes withdraw water directly from Lake Michigan and Outfall 012 discharges directly to the "open waters of Lake Michigan". Reference is made to ArcelorMittal's comments regarding IDEM's erroneous determination that monitoring station 012 discharges to the "open waters of Lake Michigan" and the related proposed water quality based effluent limits for monitoring station 012, which are not warranted based on *reasonable potential to exceed* assessments. Likewise, the proposed chronic toxicity threshold level of 1.0 TUc is not warranted for monitoring station 012. Given the discharge circumstances and high rate recycle for monitoring station 012, ArcelorMittal requests that the renewal NPDES permit not contain any biomonitoring requirements for monitoring station 012, if limited and monitored at all.

Response 5: For clarity, the Testing Frequency and Duration section (d.) has been modified to read *"The chronic toxicity test specified in Part I.H.1.b. above shall be conducted monthly for three (3) months initially and thereafter at least once every quarter for the duration of the permit. After three tests have been completed, that indicate no toxicity as defined in section f. below, the permittee may reduce the number of species tested to only include the most sensitive to the toxicity in the effluent. In the absence of toxicity with either species in the monthly testing for three (3) months in the current tests, sensitive species will be selected based on frequency and failure of whole effluent toxicity tests with one or the other species in the immediate past."*

In regards to Outfall 012 of Indiana Harbor West and the determination of a discharge to the open waters of Lake Michigan, please refer to Response #14. Based in part on that response and the use of several water treatment additives that may be discharged at that outfall, biomonitoring requirements will remain in this permit.

Comment 6: **FREEZE PROTECTION**

ArcelorMittal requests that the discharge authorization statements for each internal and external Outfall in each of the Indiana Harbor permits contain freeze protection agents within the list of the authorized discharges. Seasonal use of antifreeze in process and cooling water systems is essential to protect such systems from freeze damage when idled or taken out of service during cold weather periods. Upon start-up, service water is added to these systems and the antifreeze is diluted and becomes a component of the discharges. ArcelorMittal previously provided IDEM with estimates of possible concentrations of antifreeze for Outfall 011 at Indiana Harbor East and Outfall 001 at Indiana Harbor Long Carbon, and proposed to do so as follows for other outfalls at the Indiana Harbor plants where freeze protection agents may be used.

To ensure such discharges are authorized and regulated in an appropriate fashion, ArcelorMittal requests the following footnote be added in the NPDES permits for each internal and external outfall at the four ArcelorMittal Indiana Harbor plants:

[x] The permittee is authorized to provide freeze protection for its process water, process wastewater and non-contact cooling water systems as necessary. Prior to discharge of the freeze protected water, the permittee shall provide IDEM estimates of discharge concentrations of the freeze protection agents.

Response 6: ‘Freeze protection agents’ are considered water treatment additives and are subject to IDEM’s approval procedures prior to discharge. No changes to the discharge authorization statements will be made at this time. Additional language has been added to Section 5.8 of this Fact Sheet acknowledging the anticipated use of freeze protection agents.

Comment 7: **MONITORING REQUIREMENTS FOR FREE CYANIDE, FLUORIDE AND SELENIUM**

The above draft NPDES permits contain proposed routine monitoring requirements as set out below for free cyanide, fluoride and selenium. Water quality based effluent limits have not been proposed. Reportedly, the data will be used to determine whether the discharges pose a *reasonable potential* to cause or contribute to exceedances of water quality standards for the next renewal NPDES permits.

Indiana Harbor Central Treatment Plant (p.41 of 60)

	Monitoring Period During Permit Term	Monitoring Frequency	Sample Type
Outfall 001 Fluoride Free cyanide	Life of permit Life of permit	2 x month 2 x month	24-hr composite Grab

Indiana Harbor West (p. 55 of 77)

	Monitoring Period During Permit Term	Monitoring Frequency	Sample Type
Outfall 002 Fluoride Free cyanide	36 to 47 months 36 to 47 months	2 x month 2 x month	24-hr composite Grab
Outfall 009 Fluoride Free cyanide	36 to 47 months 36 to 47 months	2 x month 2 x month	24-hr composite Grab
Outfall 010 Fluoride Free cyanide	36 to 47 months 36 to 47 months	2 x month 2 x month	24-hr composite Grab
Outfall 011 Fluoride Free cyanide	36 to 47 months 36 to 47 months	2 x month 2 x month	24-hr composite Grab

The Fact Sheets for the draft Indiana Harbor permits state that a review of Indiana’s Section 303(d) list shows there are no pollutants on the list that have the potential to

impact waste load allocation analyses for the renewal of NPDES permits on a whole watershed basis (see Attachment A – Water Quality Assessment, p. 3). As shown below, available information and data, as well as Indiana’s Section 302(d) list, demonstrate there is no reasonable basis for the proposed monitoring requirements.

#### Free Cyanide

The Indiana water quality standards for cyanide are for free cyanide as follows:

	ug/L	mg/L
Criteria Maximum Concentration	22	0.022
Criteria Continuous Concentration (4-Day Average)	5.2	0.0052

Indiana’s 2008 Section 303(d) list included the Grand Calumet River as impaired for free cyanide, but not the Indiana Harbor Ship Canal or Indiana Harbor. The draft 2010 Section 303(d) list is the same. The Fact Sheet for Indiana Harbor East (p. 26 of 111) and Fact Sheets for the other ArcelorMittal Indiana Harbor permits state there is a new Section 303(d) listing for free cyanide in Indiana Harbor. However, the “new listing” is not reported in the Indiana 2008 Section 303(d) list or the draft 2010 list.

The Fact Sheets further state the proposed monitoring requirements for free cyanide are based on data collected at the IHC-0 monitoring station in Indiana Harbor during 2000 and 2001. These data are at least 10 years old and, as shown below, do not reflect current conditions in Indiana Harbor. Attachment A to this comment is a compilation of available IDEM data for cyanide amenable to chlorination (CATC), free cyanide (F. CN) and total cyanide (T. CN) collected at monitoring station IHC-0 (Indiana Harbor) from January 1990 to March 2008 and at monitoring station IHC-2 (Indiana Harbor Ship Canal at Dickey Road) for the period January 1990 to February 2010. The Dickey Road monitoring station IHC-2 is downstream of Indiana Harbor Central Treatment Plant and Indiana Harbor Long Carbon and upstream of all Indiana Harbor East and West outfalls. The Indiana Harbor IHC-0 monitoring station is located downstream of all Indiana Harbor East outfalls and downstream of Indiana Harbor West Outfalls 002, 009 and 010, and in the immediate vicinity of where the discharge channel for Indiana Harbor West Outfall 011 empties into Indiana Harbor. Thus, the data collected at the IHC-0 monitoring station can be affected by the discharge from Outfall 011. Until recently, the discharge from Outfall 011 included treated process wastewaters from the blast furnaces and the sinter plant. These wastewaters can contain cyanide compounds. Unlike IHC-0, data obtained at the IHC-2 Dickey Road monitoring station provides a good representation of water quality in the upstream end of the Indiana Harbor Ship Canal.

The data for station IHC-2 show nearly all non-detect results at concentrations of < 0.005 mg/L for all three forms of cyanide for the entire period of record from 1990-2010. During 2000 and 2001 there were a few detect values of only total cyanide in the 0.007 to 0.008 mg/L range. For the period 2002 to 2010, there were three detect values at 0.006 mg/L (Dec. 2002, Dec. 2003, Jan. 2005), all well below the CMC water quality standard of 0.022 mg/L. These data do not indicate impairment for free cyanide at and upstream of Dickey Road.

The data for IHC-0 show detections of all forms of cyanide during 2000 and 2001; however, all reported analytical results were < 0.005 mg/L from 2002 through March 2008, when IDEM apparently suspended monitoring for total cyanide at station IHC-0. Thus, the data show CMC and CCC water quality standards for free cyanide have been



attained at that location for at least six consecutive years, and at station IHC-2 for at least eight consecutive years. ArcelorMittal believes it is not appropriate to base considerations of impairment for free cyanide and NPDES permit monitoring requirements on data that are more than 10 years old.

Furthermore, available monitoring data for total cyanide at Indiana Harbor East and Indiana Harbor West external outfalls (July 2005 to June 2010) show most measurements of total cyanide are not present at levels above 0.005 mg/L, with average total cyanide discharge concentrations in the range of 0.005 mg/L to 0.013 mg/L on an outfall-by outfall basis (non-detect concentrations counted as present at 0.005 mg/L).

Given available monitoring data at stations IHC-0 and IHC-2 for the last several years and recent ArcelorMittal monitoring data for total cyanide, there is no basis to conclude the Indiana Harbor Ship Canal or Indiana Harbor are impaired for free cyanide, and no basis to include free cyanide monitoring requirements in the renewal NPDES permits for these four facilities. Thus, ArcelorMittal requests that free cyanide monitoring requirements be deleted from the NPDES permits for Indiana Harbor East, Indiana Harbor Long Carbon, Indiana Harbor West and Indiana Harbor Central Treatment Plant.

#### Fluoride

The Indiana water quality standards for fluoride are 1.0 mg/L applicable to Lake Michigan and 3.4 mg/l applicable to the IHSC. The water quality standard for Lake Michigan was established to minimize or prevent increased levels of fluoride in Lake Michigan (see 327 IAC 2-1.5-8, Table 8-9 of the water quality standards – Additional Criteria for Lake Michigan). The standard applicable to the IHSC is a chronic aquatic life criterion. Available monitoring data for fluoride at the IHC-2 Dickey Road monitoring station (January 2005 to December 2009) show the geometric mean concentration of fluoride at that location is 0.49 mg/L, approximately one-half of the Lake Michigan water quality standard, and approximately one seventh of the IHSC aquatic life criterion.

Recent monitoring data (July 2005 to June 2010) for ArcelorMittal Indiana Harbor East and West facility outfalls are as follows:

Plant/Outfall	LTA Discharge Flow (mgd)	Average Fluoride Concentration (mg/L); (Number of data)	Gross Mass Loading (lbs/day)
Indiana Harbor East			
Outfall 011	84.7	0.27 (8)	191
Outfall 014	11.5	1.4 (2)	134
Outfall 018	15.9	0.9 (2)	119
Total IH East	112.1		444
Indiana Harbor West			
Outfall 002	11.2	0.41 (1)	38
Outfall 009	55.3	0.45 (20)	208
Outfall 010	36.6	0.45 (20)	137
Outfall 011	23.4	1.4 (19)	273
Total IH West	126.5		656
Total IH East and West	238.6		1,100
IDEM WQ Design Flow @ Canal Road (352 cfs)	227.5	0.49 (geometric mean)	930
Total Indiana Harbor (WQ Design Flow does not include IDEM Lake Michigan Intrusion Flow)	466.1	0.52 (calculated)	2,030
IDEM Lake Michigan Intrusion Flow (132 cfs)	85.3	0.07 (IDEM model data)	50
Total Indiana Harbor and Lake Michigan Intrusion Flow	551.4	0.45 (calculated)	2,080

This simplified mass balance approach to estimating fluoride concentrations in Indiana Harbor shows that when considering the net addition of flow from ArcelorMittal Indiana Harbor East and West and gross mass discharges of fluoride, the calculated concentration of fluoride in Indiana Harbor is 0.52 mg/L, again approximately one-half the Lake Michigan water quality standard of 1.0 mg/L. These calculations indicate that the ArcelorMittal Indiana Harbor East and West gross discharges of fluoride add only 0.03 mg/L of fluoride to the background concentration measured at monitoring station IHC-2 (Dickey Road), which is downstream of Indiana Harbor Central Treatment Plant and Indiana Harbor Long Carbon. The above monitoring data do not reflect the zero discharge wastewater treatment system installed at Indiana Harbor West, which will reduce the above-listed mass discharge from Outfall 011. When accounting for the Lake Michigan intrusion flow, the calculated fluoride concentration at the mouth of Indiana Harbor is 0.45 mg/L, well below the 1.0 mg/L Lake Michigan water quality standard. Furthermore, IDEM's multi-discharger WLA model overestimates discharges from the ArcelorMittal Indiana Harbor mills and fails to account properly for background fluoride monitoring data at Dickey Road.

The data presented in the table above demonstrate that discharges of fluoride from Indiana Harbor East, Indiana Harbor West, Indiana Harbor Long Carbon and Indiana Harbor Central Treatment Plant do not pose a *reasonable potential* to cause or contribute to exceedances of the water quality standards for fluoride in Lake Michigan and in the

IHSC. Accordingly, ArcelorMittal requests the proposed monitoring requirements for fluoride be deleted from each of the four Indiana Harbor NPDES permits.

Response 7: Free Cyanide

The Indiana Harbor is included on the final 2010 303(d) list submitted by IDEM to U.S. EPA for free cyanide based on data collected in 2000 and 2001 at IDEM fixed water quality monitoring station IHC-0. The chronic aquatic criterion for free cyanide of 5.2 ug/l is near the reporting level of 5 ug/l used by IDEM for fixed station free cyanide data. Data reported as less than the reporting level may still be near the criterion as shown in TMDL sampling data collected in the Indiana Harbor Canal and Indiana Harbor in July 1999 and April 2000 using a more sensitive test method. Total cyanide is currently monitored at many of the ArcelorMittal internal and final outfalls, but little data for free cyanide are available. The total cyanide data include values reported above the chronic aquatic criterion for free cyanide. Since total cyanide is present at many of the ArcelorMittal outfalls and free cyanide has been shown to be present in the Indiana Harbor Canal and Indiana Harbor, a multi-discharger model for free cyanide is appropriate for the subwatershed. The monitoring requirements will allow the collection of long-term free cyanide data at final outfalls with known internal sources of total cyanide and provide a year of data at other final outfalls to provide sufficient information to characterize the variability of the discharges and conduct a multi-discharger model for free cyanide in the next permit renewal.

Fluoride

A multi-discharger model for fluoride was conducted based on known sources of fluoride in the ArcelorMittal discharges and known sources in the East Branch Grand Calumet River and West Branch Grand Calumet River that contribute to the background concentration. Limited data were available for some ArcelorMittal final outfalls that contain sources of fluoride at internal outfalls resulting in projected instream concentrations in the Indiana Harbor near the Lake Michigan criterion. Monitoring is being required to provide sufficient information to better characterize the variability of fluoride in the discharges and to conduct a multi-discharger model for free fluoride in the next permit renewal.

Comment 8: **MONITORING FREQUENCY FOR TOTAL RESIDUAL CHLORINE (TRC)**

Each of the draft NPDES permits for the Indiana Harbor plants contains proposed effluent limits and monitoring requirements for total residual chlorine (TRC) at external outfalls. The proposed monitoring frequencies are as follows:

Plant, External Outfalls	Proposed Monitoring Frequencies
Indiana Harbor East 011, 014, 018 019 518 008 (only during emergency overflow)	5 x week 1 x month 2 x week 1 x daily
Indiana Harbor Long Carbon 001	5 x week
Indiana Harbor West 002, 009, 010, 011, 012	1 x daily
Indiana Harbor Central Treatment Plant 001	1 x daily

As discussed previously with IDEM, ArcelorMittal conducts TRC monitoring at each plant using contract sampling and analytical resources. Monitoring frequencies of daily would require weekend monitoring at high cost. Given that historical TRC monitoring data for each plant do not indicate significant or frequent problems with TRC monitoring, ArcelorMittal requests that, except for Outfall 019 at Indiana Harbor East, the TRC monitoring frequencies for all external outfalls at each plant be set at no more than 5 x week. IDEM addressed this issue for the Indiana Harbor East and Indiana Harbor Long Carbon draft permits, but did not for Indiana Harbor West and Indiana Harbor Central Treatment Plant. ArcelorMittal believes this was an oversight and requests that IDEM set the TRC monitoring frequencies at Indiana Harbor West and Indiana Harbor Central Treatment Plant at no more than 5 x week.

#### Additional Comments Regarding TRC

1. Indiana Harbor East Outfall 019, Footnote 6 (p. 19 of 84). The footnote needs to be expanded to include the standard TRC provisions for discharges between the LOD and LOQ for both the proposed monthly average and daily maximum effluent limits.
2. Indiana Harbor East Outfall 518, (p. 16 of 84). A footnote needs to be added to include the standard TRC provisions for discharges between the LOD and LOQ for both the proposed monthly average and daily maximum effluent limits.
3. Indiana Harbor West Outfalls 002, 009, 010, 011 and 012, (pp. 3, 6, 10, 13, 19 of 77). For Outfalls 002 and 009, footnote (5) should also refer to the monthly average mass limit. For Outfalls 010 and 011, footnote (4) should apply to the average mass limit. For Outfall 012, footnote (6) should apply to the monthly average mass. In addition, only footnote 9 for Outfall 012 refers to Section I.G, when all of the other outfalls with TRC limits are referenced in that section.

Response 8: IDEM agrees that the IH West and IH CTP permits will be changed to reflect a TRC monitoring frequency of 5 X Week for each final outfall. In addition, the footnote corresponding to TRC monitoring frequency has been changed from:

*Monitoring for TRC shall be 1 X Daily during Zebra or Quagga mussel intake chlorination, and continue for three additional days after Zebra or Quagga mussel treatment has been completed.*

To:

*Monitoring for TRC shall be performed, at a minimum, during Zebra or Quagga mussel intake chlorination, and continue for three additional days after Zebra or Quagga mussel treatment has been completed.*

The footnote mentioned in item #3 in the comment above will not be added as suggested. IDEM does not recognize the need for this footnote. Part I.C.3.a.(1) of the permit explains how mass based monthly average limitations are to be calculated.

**Comment 9: ANALYTICAL METHODS, SAMPLE TYPES, WATER TREATMENT ADDITIVES, LOW VOLUME WASTES**

ArcelorMittal requests the following comments regarding monitoring requirements, analytical methods, water treatment additives and low volume wastes be addressed in each of the Indiana Harbor NPDES permits, as appropriate:

**1. Analytical Method for Total Cyanide and Free Cyanide Monitoring Requirements**

The most recent revision to 40 CFR Part 136 lists ASTM D 2036-98(A) as an approved analytical method for total cyanide, in addition to those listed in the draft permits. The permits should clearly specify that any method approved by EPA and published at 40 CFR Part 136 can be used for NPDES permit compliance monitoring. In addition, where monitoring for both total cyanide and free cyanide is required (i.e., Outfall 014 at Indiana Harbor East), ArcelorMittal requests that if the total cyanide analytical result is non-detect, the corresponding analysis for free cyanide can be waived.

**2. Sample type for Total Phenols (Phenols (4AAP))**

ArcelorMittal requests the sample type of total phenols be specified as “24-hour composite” instead of “grab” to correspond to current monitoring requirements and current monitoring practices. This would allow continued collection of ammonia-N and total phenols samples in one container and separation of samples in the laboratory. Otherwise, additional samples would have to be collected to meet the “grab” sample requirement for total phenols.

**3. Water Treatment Additives**

Footnotes regarding water treatment additives for each outfall in each permit require reporting of changes in dosage rates in accordance with Part II.C. 1. of the standard conditions. As part of the NPDES permit renewal process, ArcelorMittal provided IDEM lists of currently used water treatment additives for each Indiana Harbor facility and the respective estimated maximum dosage rates of each additive. Part II.C.1.b. of the standard conditions states notice to IDEM is required only when:

*“The alteration or addition could significantly change the nature of, or increase the quantity of pollutants discharged. This notification applies to pollutants that*

*are subject neither to effluent limitations in Part I.A. nor to notification requirements in Part II.C.9 of this permit.”*

ArcelorMittal’s interpretation of Part II.C.1.B. is that water treatment additives fall under the above reporting requirement. Because ArcelorMittal has reported to IDEM estimated maximum dosage rates of the water treatment additives, we believe this reporting requirement would not come into effect unless the previously reported maximum dosage rates were exceeded. Otherwise, taken literally, the reporting requirement would be virtually impossible to meet. For example, many non-contact cooling water and process water outfalls have effluent limits for total residual chlorine (TRC). Effluent dechlorination with sodium bisulfite is practiced to maintain compliance with the TRC effluent limits. The rates of application of sodium bisulfite are variable and are based on the amounts of TRC present. It would not be possible or reasonable to record changes in sodium bisulfite addition over the course of a day for each outfall. The same issue pertains to use of water treatment chemicals at process wastewater treatment facilities, but to a lesser extent.

To address this issue, ArcelorMittal requests the footnotes in each of the Indiana Harbor facility NPDES permits be modified as follows:

*“In the event that changes are to be made in the use of water treatment additives including dosage rates to Outfall 00x beyond previously reported estimated maximum dosage rates, the permittee shall notify the Indiana Department of Environmental Management as required by Part II.C.1. of this permit.” emphasis added*

#### 4. Low volume wastes

For purposes of defining “low volume wastes” that may be discharged from boiler house and power station operations, ArcelorMittal requests that reverse osmosis reject water be considered “low volume waste”. We believe this is consistent with the specialized definition at 40 CFR §423.11(b) of the Steam Electric Power Generating effluent limitations guidelines which includes ion exchange water treatment system wastewaters as low volume waste. Reverse osmosis systems are now being used to replace many of the conventional ion exchange and water softening operations at large boiler house and power generating stations for boiler water make-up treatment.

Response 9: Analytical Method for Total Cyanide and Free Cyanide Monitoring Requirements  
IDEM establishes which analytical methods should be used in the NPDES permits, in part, to ensure that the data collected can be used adequately. Parameters identified in 40 CFR Part 136 often have many approved analytical methods at varying levels of detection (LOD) and quantitation (LOQ). Allowing a permittee to select any of those approved methods may not provide data at the factor of concentration needed. For example, if the permittee provided analytical data for a Reasonable Potential to Exceed analysis, a data set with values of <1 mg/l could not determine if a reasonable potential existed if the water quality criterion was at 0.5 mg/l. Therefore, IDEM determines which analytical method(s) can be used. The permittee may request to use another analytical method, however, and that request must be approved by IDEM prior to use for data collection.

#### Sample type for Total Phenols (Phenols (4AAP))

Grab samples should be used as the collection method for parameters that are: (i) relatively constant in the discharge; (ii) likely to change with storage such as temperature, residual chlorine, cyanides, phenols, pH, etc.; or (iii) likely affected by compositing such as oil and grease and volatiles. As the total phenols concentration in this permit is expected to be relatively constant, identified above as likely to change with storage, and is considered a volatile compound, the 'grab' sample method will remain.

#### Water Treatment Additives

IDEM agrees, in part, with the comment above regarding the footnotes directed at water treatment additives. However, IDEM proposes to incorporate the following statement in lieu of the one provided:

*"In the event that changes are to be made in the use of water treatment additives that could significantly change the nature of, or increase the discharge concentration of the additive, the permittee shall notify the Indiana Department of Environmental Management as required by Part II.C.1. of this permit."*

It is important to note that the dosage rate is not the only deciding factor when calculating the discharge concentration of a pollutant from a water treatment additive. Other factors that need be considered when determining the discharge concentration are, but not limited to, discharge flow, equipment used, physical conditions, etc.

#### Low Volume Wastes

The comment above regarding the classification of RO reject water as 'Low Volume Waste' does not appear to be applicable to Indiana Harbor West or Indiana Harbor Central Treatment Plant nor would such a change necessitate a revision to the effluent limitations at either Internal or Final Outfalls. No changes are necessary at this time.

#### Comment 10: **CHANGES IN DISCHARGES OF TOXIC SUBSTANCES**

The draft NPDES permit for the Indiana Harbor Central Treatment Plant includes a Standard Condition at Part II.A.16 (p. 48 of 59) titled "New or Increased Discharges of Pollutants." The other three draft Indiana Harbor permits contain the same Standard Condition in Part II.A.16, but the titles are "Changes in Discharges of Toxic Substances." ArcelorMittal requests the titles be made consistent in all four NPDES permits so that the title reads "New or Increased Discharges of Pollutants."

In addition, page 48 of the draft NPDES permit for the Indiana Harbor Central Treatment Plant contains the following statement:

*"This permit prohibits the permittee from taking any deliberate action that would result in a new or increased discharge of a bioaccumulative chemical of concern (BCC) or a new or increased permit limit for a pollutant parameter that is not a BCC unless one of the following is completed prior to commencement of the action: ... "* (emphasis added.)

The word "deliberate" is missing from the statement in the draft NPDES permits for Indiana Harbor East, Indiana Harbor Long Carbon and Indiana Harbor West.

ArcelorMittal requests that the word “deliberate” be added to the NPDES permits issued for Indiana Harbor East (p. 70 of 84), Indiana Harbor Long Carbon (p. 50 of 60), Indiana Harbor West (p. 62 of 72), as well as Indiana Harbor Central Treatment Plant (p. 48 of 59).

Response 10: The title of Part II.A.16 will be modified from “Changes in Discharges of Toxic Substances” to “New or Increased Discharges of Pollutants” for consistency. Additionally, the word “deliberate” has been added to the NPDES permit.

Comment 11: **STORM WATER NON-NUMERIC CONDITIONS**

Each of the Indiana Harbor draft NPDES permits includes special conditions under Storm Water Non Numeric Conditions that are conditions of applicable Title V air permits. For example, paragraph 5.b. that references good housekeeping, is covered under the applicable requirements in the facility’s Fugitive Dust Control Plan. Also, paragraph 10.c. references regular inspections of air pollution control equipment as well as monitoring inlets and outlets of air flow ducts to check for particulate deposition. These requirements are duplicative of requirements in the applicable Title V air permits. Accordingly, ArcelorMittal requests that IDEM remove these requirements from the draft NPDES permits for the Indiana Harbor facilities, specifically every action, inspection or reporting requirement related to air pollution control equipment and fugitive dust controls.

Response 11: The storm water non-numeric conditions are the same as those in other similarly issued Individual NPDES permits. As a delegated state program, the IDEM modeled its storm water permitting approach after the US EPA’s storm water program. For duplicative conditions, in instances where actions taken to comply the Title V air permits also satisfy the storm water non-numeric conditions, the action can be documented in the SWPPP for compliance purposes.

Comment 12: **PCB DISCHARGE PROHIBITION**

Part III of Each Draft NPDES Permit

ArcelorMittal has implemented programs to eliminate transformers and capacitors containing PCBs from its Indiana Harbor facilities and has essentially eliminated PCB-containing transformers from electrical service. PCBs are not used in any process, water treatment or wastewater treatment operations. The draft Indiana Harbor NPDES permits contains provisions that prohibit discharges of PCBs. These conditions were first included in NPDES permits issued in the 1980’s and earlier. Since that time, there have been significant advances in analytical science such that PCBs can now be detected in the low ng/L range and lower. Consequently, it may be possible to detect PCBs in discharges where the source is the intake water. Accordingly, ArcelorMittal requests the phrase “... attributable to facility operations” be added to the PCB discharge prohibition statement in each Indiana Harbor permit. Without this requested change, ArcelorMittal could be put in the untenable position of being required to treat large volume process wastewater and non-contact cooling water discharges for PCBs that are beyond its control and at levels that may be untreatable.

Response 12: The source of the prohibition says specifically: “*There shall be no discharge of polychlorinated biphenyl (PCBs) compounds such as those commonly used for transformer fluid.*” In essence, this is a prohibition on using compounds containing PCB



compounds at these facilities. Should PCBs be detected in the discharge, the facility should take action to determine if the source is indeed the source water.

Comment 13: **POLLUTANT MINIMIZATION PROGRAMS**

Part I.B of each draft NPDES Permit contains requirements for Pollutant Minimization Programs (PMPs) for outfalls where total residual chlorine (TRC) is limited. A PMP program is also required for silver at Outfall 001 at Indiana Harbor Central Treatment Plant. Paragraphs (3) of the PMP requirements for the draft NPDES permits for Indiana Harbor East (p. 55 of 84) and Indiana Harbor Long Carbon (p. 37 of 60) require only *“Monitoring as necessary to record progress toward the goal.”*, whereas Paragraphs (3) contained in the draft NPDES permits for Indiana Harbor West (p. 48 of 77) and Central Treatment Plant (p. 34 of 59) prescribes more extensive set of monitoring programs. Also paragraphs (4) of the proposed PMPs require submission of an annual status report. Because monitoring data will be submitted as part of the monthly discharge monitoring reports, the requirement to submit an annual summary report is redundant and should be eliminated.

Consistent with the manner in which PMP requirements were addressed in the recently issued Burns Harbor NPDES permit, ArcelorMittal requests that the monitoring requirements for paragraphs (3) in the Indiana Harbor West and Indiana Harbor Central Treatment Plant NPDES permit be made consistent with those for Indiana Harbor East and Indiana Harbor Long Carbon, and that the paragraphs (4) annual reporting requirements be eliminated.

Response 13: For Indiana Harbor West and Indiana Harbor Central Treatment Plant, paragraph (3) will be made consistent with those for Indiana Harbor East and Indiana Harbor Long Carbon. However, the annual report is required in accordance with 327 IAC 5-2-11.6(h)(7)(A)(iv). The annual reporting requirements will not be removed.

Comment 14: **NEW PROPOSED OUTFALL 012 (MONITORING STATION 012)**

Outfall 012 is a new internal compliance monitoring station that IDEM proposes to add to the renewal NPDES permit for Indiana Harbor West. Monitoring station 012 is the overflow from the North Lagoon that is routed directly to the forebay of the No. 3 Pumphouse intake (No. 3 intake). The North Lagoon overflow contains fully treated process water from internal Outfalls 111 (84” hot strip mill) and 211 (No. 3 cold mill complex), non-contact cooling water and storm water. The current NPDES permit and the draft renewal NPDES permit contain technology-based effluent limits at internal Outfalls 111 and 211 that were derived from 40 CFR Part 420. Thus, process water discharges from the 84” hot strip mill and the No. 3 cold mill complex are regulated and fully treated prior to mixing with non-contact cooling water and storm water in the North Lagoon and prior to recycle through the No. 3 intake.

The Fact Sheet for the draft Indiana Harbor West NPDES permit raises a number of issues associated with monitoring station 012:

1. IDEM considers the intake channel for the Nos. 2 and 3 intakes at IH West as “open waters of Lake Michigan”. However, the regulatory definition of the “open waters of Lake Michigan” clearly excludes nearly all of the intake channel

because the channel is within the “northern most point of the LTV Steel property” established by that definition (see below).

2. Lack of proper consideration of the high rate recycle of fully treated process wastewaters from the 84” hot strip mill and the No. 3 cold strip mill complex provided by the No. 3 intake.

3. Improper water quality based effluent limits for vanadium and zinc.

#### Open Waters of Lake Michigan

The definition of the “open waters of Lake Michigan” is set out in the Indiana water quality standards at 327 IAC 2-1.5-2(64):

*““Open waters of Lake Michigan” means all of the waters within Lake Michigan lakeward from a line drawn across the mouth of tributaries to the lake, including all waters enclosed by constructed breakwaters. For the Indiana Harbor Ship Canal, the boundary of the open waters of Lake Michigan is delineated by a line drawn across the mouth of the harbor from the East Breakwater Light (1995 United States Coast Guard Light List No. 19675) to the northernmost point of the LTV Steel Property along the west side of the harbor.”*

IDEM states in Attachment A of the Fact Sheet (p. 5), that Indiana Harbor West has two water intakes in Lake Michigan; and, that IDEM considers the intake channel for the Nos. 2 and 3 intakes as “open waters of Lake Michigan” (p. 12). Figure IHW-1 is an aerial photograph showing the Nos. 2 and 3 intakes, the intake channel and the northern section of the Indiana Harbor Ship canal that borders the open waters of Lake Michigan. A line depicting the boundary described in the above definition of “open waters of Lake Michigan” is shown on the aerial photograph. It is evident from a simple reading of the regulatory definition of “open waters of Lake Michigan” and review of the aerial photograph that the Indiana Harbor West intake channel and the Nos. 2 and 3 intakes are not within open waters of Lake Michigan. They are not lakeward of the line between the East Breakwater Light and the northernmost point of LTV Steel property (now ArcelorMittal Indiana Harbor LLC property). In fact, the No. 3 Intake is approximately 0.21 miles south of the northernmost point of ArcelorMittal property and the No. 2 intake is approximately 1.0 miles south and southwest of the northernmost point of ArcelorMittal property. Thus, IDEM’s assertion that the intake channel for the Nos. 2 and 3 intakes are within the open waters of Lake Michigan is wrong, and any applications of Indiana water quality standards and water quality standards implementation procedures based on that premise are unreasonable and unlawful.

As can clearly be seen in the aerial photo, monitoring station 012 does not discharge directly into the intake channel. Instead, this discharge is directly into the No. 3 Pumphouse forebay. Therefore, it is a moot point if IDEM chooses to disagree with ArcelorMittal’s interpretation of the “open waters of Lake Michigan” because the monitoring station 012 discharge does not discharge directly to the intake channel. As a result, monitoring station 012 should not be regulated at all because it does not discharge directly to waters of the State.

#### High-Rate Recycle of North Lagoon Overflow and Outfall 111 and Outfall 211 Compliance Assessments

During January 2011, ArcelorMittal submitted a report of field studies conducted during November 2010 that demonstrated the water discharged from Outfall 012 is recycled to

the plant. The great majority, if not all, of the recycled water is returned to the 84" hot strip mill and the No. 3 cold mill complex. This is a high-rate process water recycle system that does not discharge directly to waters of the State.

The draft NPDES permit requires that measured discharge flows at internal Outfalls 111 and 211 be used to calculate mass discharge of limited pollutants at those internal compliance monitoring stations. Because the fully treated process waters discharged from Outfalls 111 and 211 are recycled back to the processes that generated the process wastewaters and are not discharged to waters of the state, calculations of mass discharges of limited pollutants at Outfalls 111 and 211 as required by the draft NPDES permit overstate actual discharges by a considerable amount. In effect, ArcelorMittal is not receiving full credit for the technology it installed to comply with the technology-based effluent limits. For purposes of assessing compliance with technology-based effluent limits at internal Outfalls 111 and 211, ArcelorMittal requests that the NPDES permit authorize a nominal and constant 75% reduction in calculated mass loadings to account for the high rate recycle of treated process water through the No. 3 intake.

#### Improper Water Quality-Based Effluent Limits for Vanadium and Zinc at Monitoring Station 012

As demonstrated above, IDEM wrongly assumed the discharge from Outfall 012 is to the open waters of Lake Michigan and based its water quality assessment on that incorrect premise. In so doing, IDEM also used an incorrect monitoring station 012 discharge flow of 70 million gallons per day (mgd) for its reasonable potential assessments. At most, any reasonable potential assessment should be based on a flow of not more than 7 mgd because of the recycle noted above; and, any discharge should be considered to the Indiana Harbor Ship Canal (Outfalls 009, 010) or to Indiana Harbor (Outfall 011).

Furthermore, reasonable potential assessments for Outfalls 009, 010 and 011 conducted by IDEM implicitly consider any discharges resulting from recycle of the North Lagoon overflow to the Nos. 2 and 3 intakes. Those reasonable potential assessments did not yield any proposed WQBELs for any pollutants contained in the North Lagoon overflow.

In addition, for vanadium, one datum that is clearly an outlier should be discounted from the RPE considerations in accordance with IDEM water quality assessment policies. Table 3 of the November 2010 ArcelorMittal Outfall 012 flow recycle study presents estimates of possible discharges to the IHSC and Indiana Harbor. Those estimates show that only minimal amounts of discharge are possible and that these discharges, if occurring, would not impact water quality in the Indiana Harbor Ship Canal or Indiana Harbor to any appreciable extent considering water quality design flows developed by IDEM.

As noted above, ArcelorMittal requests that a 75% recycle rate credit be allowed for compliance determinations for internal Outfalls 111, 211 and 411. Given this credit, there should be no reasonable potential for the discharges from Outfalls 111 or 211 to cause or contribute to any exceedances of water quality standards in the Indiana Harbor Ship Canal and Indiana Harbor, and no WQBELs should be established for Outfalls 111, 211 or monitoring station 012.

ArcelorMittal would agree to periodically demonstrate recycle rates at monitoring station 012 and the No. 3 water intake during the term of the renewal NPDES permit. For

example, the study could be repeated once during the second year of the NPDES permit and once just prior to the next renewal permit application.

Monitoring Station 012, Reduction in Proposed Mercury Monitoring Frequency

Footnote [5] on page 18 of 77 of the draft NPDES permit would allow a modification of the permit to reduce the mercury monitoring frequency at monitoring station 012.

ArcelorMittal requests that this same provision also be added for Outfalls 002, 009, 010 and 011.

Response 14: **New Proposed Outfall 012 (Monitoring Station 012)**

Open Waters of Lake Michigan

Based on the facility map submitted with the permit renewal application, the northern most point of the ArcelorMittal property is the breakwall on the west side of the Indiana Harbor. ArcelorMittal did not provide any information as part of their comments on the draft permit that indicates that their property boundary does not include the breakwall. Therefore, based on the definition of Open Waters of Lake Michigan under 327 IAC 2-1.5-2(64), for the Indiana Harbor Ship Canal, the boundary of the open waters of Lake Michigan is delineated by a line drawn across the mouth of the harbor from the East Breakwater Light to the northernmost point of the breakwall along the west side of the harbor. Therefore, the channel behind the breakwall used to convey water to the No. 2 and No. 3 intakes is considered to be the open waters of Lake Michigan. While Outfall 012 does not discharge directly to the intake channel, the discharge does enter the No. 3 intake forebay and is either recycled through the No. 3 intake or flows into the intake channel and enters waters of the state.

High-Rate Recycle of North Lagoon Overflow and Outfall 111 and Outfall 211

Compliance Assessments

Internal Outfalls 111 and 211 will remain in their entirety. Technology-based effluent limitations were derived using flow and production values from those sources, respectively.

Improper WQBELs for Vanadium and Zinc at Monitoring Station 012

Discharges to the open waters of Lake Michigan are not granted mixing zones by default so using a lower effluent flow would not increase the concentration-based preliminary effluent limitations used in the reasonable potential analysis. As noted in the permit application for ArcelorMittal West, vanadium is present in steel processed at the 84" Hot Strip Mill so it is a pollutant of concern at Outfall 012. ArcelorMittal has not provided a rationale for the high vanadium sample so there is no reason to discount it as not being representative of the discharge through Outfall 012. The January 2011 report that provides the results of the November 2010 Outfall 012 flow recycle study and estimates of possible discharges from Outfall 012 does not include additional monitoring data for Outfall 012 collected by ArcelorMittal after the report was finalized. This additional data contained the high effluent sample for vanadium so the estimates for vanadium in the report do not fully characterize the discharge. Since the discharge from Outfall 012 does enter waters of the state, a reasonable potential analysis based on a discharge to the intake channel is appropriate.

Monitoring Station 012, Reduction in Proposed Mercury Monitoring Frequency

The above mentioned footnote was included only at Outfall 012 because the data for mercury at that outfall was insufficient to determine if a Reasonable Potential to Exceed

water quality criterion existed. Therefore, monitoring requirements are included for a minimum of one year's time in order to gather the data needed. The permittee may, after such a period, request a review of the data for RPE analysis.

On the contrary, mercury limitations exist at the other identified outfalls because the historical data was sufficient to determine that an RPE did exist at those location. The permittee is able, however, to request a modification any time they think data collected from any of the above mentioned outfalls indicates otherwise.

**Comment 15:   OUTFALLS 701 & 702 – ZERO DISCHARGE**

In anticipation of the renewal NPDES permit for Indiana Harbor West, new and upgraded process water treatment and recycle systems at the Steel Producing Department vacuum degasser and continuous slab caster were recently installed and placed into operation. The investment cost for these upgrades was approximately \$12,000,000. These upgraded systems were installed primarily to achieve the generally applicable technology-based effluent limits for those operations set out at 40 CFR Part 420 rather than have the limits apply at Outfall 011 as in the current NPDES permit. An innovative feature of the upgraded design was the potential for zero discharge from one or both of these systems. In order to achieve zero discharge, the fully treated process water system blowdowns can be utilized in the gas cleaning systems for the basic oxygen furnaces (BOFs). This feature was viewed as an innovative approach to achieving one of the overarching goals of the Clean Water Act – zero discharge of pollutants (see 33 U.S.C. §§ 1251(a)(1)).

ArcelorMittal's operating experience since these systems were put into operation in mid-2010 has been that zero discharge has been sustained on a continuous basis. As of this writing, there has only been one day of discharge from the continuous caster system and none from the vacuum degasser system. The draft NPDES permit establishes new internal NPDES compliance monitoring stations at the discharge from each system: Outfall 701 – vacuum degasser; Outfall 702 – continuous caster. Each treatment system is equipped with an NPDES permit compliance monitoring station comprising primary and secondary flow monitoring devices and an automatic 24-hour composite sampler. The draft permit specifies twice per week monitoring at Outfalls 701 and 702 (see pp. 15 and 16 of 77). Also, the draft permit contains the following footnote for Outfall 701, and the same footnote for Outfall 702:

*“[1] The above identified effluent limitations are only applicable when the discharge does not get directed to the BOF and discharges through Internal Outfall 701.”*

In effect, this footnote means that for compliance determinations ArcelorMittal can only consider monitoring data for days of discharge through Outfalls 701 or 702. It is possible that ArcelorMittal could have a discharge on only one day of a month that is less than an applicable daily maximum effluent limit, but greater than the corresponding monthly average limit. This would put ArcelorMittal in jeopardy of being charged with violating the 30-day average effluent limit, when in fact the actual monthly average discharge would have been far less than the respective monthly average effluent limit owing to the days with zero discharge. There is no regulatory basis for this provision and it would be counterproductive to include it in the renewal NPDES permit for Indiana Harbor West Outfalls 701 and 702.

To remedy this situation, ArcelorMittal requests that the above footnote be deleted from the final NPDES permit for Outfalls 701 and 702, and that ArcelorMittal be authorized to count scheduled monitoring days with zero discharge as “zero” for purposes of calculating the monthly average discharge to evaluate compliance with the applicable monthly average effluent limits. This is consistent with the definition of *average monthly discharge limitation* contained in the NPDES permit regulations at 40 CFR §122.2:

*“Average monthly discharge limitation means the highest allowable average of “daily discharges” measured during a calendar month, calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month.”*

For the example cited above, there would be one day of discharge during a month and no discharges on the other seven days that month when monitoring would be required with a twice per week monitoring frequency. The *sum of the daily discharges* would be the sum of the monitoring result measured on the day of actual discharge and seven zeros. The *number of daily discharges measured during that month* would be eight (i.e., the measurement for the actual discharge day and seven measurements of zero). This approach is clearly within the NPDES permit regulations.

Furthermore, the federal effluent limitations guidelines at 40 CFR Part 420 are based on the premise that the discharger is free to install any technology of its choosing to comply with NPDES permit effluent limits derived from the effluent limitations guidelines.<sup>1</sup> In this case, ArcelorMittal elected to go beyond minimum national standards and achieve zero discharge. The technologies and operating practices ArcelorMittal employs to achieve zero discharge clearly fall within the construct of the effluent limitations guidelines program and are entirely consistent with one of the principal goals of the Clean Water Act. The footnotes noted above for Outfalls 701 and 702 must be removed from the NPDES permit and ArcelorMittal must be allowed to consider monitoring days with zero discharge as zero for determining compliance with monthly average effluent limits.

In the alternative, IDEM could remove the footnotes and the monthly average limits for Outfalls 701 and 702 from the permit on the basis that ArcelorMittal has demonstrated that there is no routine discharge. The flow monitoring requirement could remain to demonstrate that there is no discharge flow and, if things would unexpectedly change, provide IDEM with the data to modify the permit at a later date to include the monthly average limits.

The continued imposition of monthly average limits at Outfalls 701 and 702 is truly a form of command and control that demonstrates a lack of ingenuity and belies the stated goals of the Clean Water Act. Rather than rewarding a facility for achieving the goal of “zero discharge” to protect the environment, the proposed footnote and the monthly average limits would actually encourage ArcelorMittal to create a low-volume discharge each monitoring day so that analytical measurements can be made and low mass discharges can be calculated to demonstrate compliance with effluent limits for each limited pollutant. In effect, IDEM would be encouraging discharges of pollutants that would otherwise not occur. ArcelorMittal requests that IDEM delete the proposed footnote cited above for Outfalls 701 and 702 and specifically authorize using zero for monitoring days with no discharge for calculation of monthly average discharges; or,

delete the monthly average effluent limits at Outfalls 701 and 702. We believe IDEM should encourage innovative approaches to achieve “zero discharge”.

<sup>1</sup> See Development Document for Effluent limitations Guidelines and Standards for the Iron and Steel Manufacturing Point Source Category, Vol. I (EPA 440/1-82/024, May 1982), p. 87.

*“The limitations neither require the installation of any specific control technology nor the attainment of any specific flow rate or effluent concentration. Various treatment alternatives or water conservation practices can be employed to achieve a particular effluent limitation and standard. The model treatment systems presented in the development document illustrate one means available to achieve the limitations and standards. In most cases, other technologies or operating practices are available to achieve the limitations and standards.”*

Response 15: IDEM commends ArcelorMittal for installing treatment systems in the spirit of going above and beyond the minimum national standards. The development document citation footnoted above allows openness for the design of treatment technologies to “achieve the limitations and standards” for the corresponding wastestreams. Therefore, the system installed by the facility should meet the applicable limitations and standards. It should be noted that the above mentioned comment would not be an issue if this system was truly a “zero discharge” system. If this was a zero discharge system, the limitations and standards would not be applicable as there would not be a discharge of those wastestreams to waters of the state.

In addition, the definition identified above from 40 CFR 122.2 implies that the use of zeros on days of no discharge is not an acceptable method of calculating the monthly average value. As noted above, the monthly average is “...calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month.” In this definition, the use of the word “measured” appears to negate the assumption that alternate values can or should be used.

No changes are necessary at this time.

Comment 16: **SECTION 301(g) EFFLUENT LIMITS: OUTFALLS 509, 009, 010 AND, 011**  
ArcelorMittal request that the following condition to allow modification of Section 301(g) effluent limits for ammonia-N and total phenols be included in the Indiana Harbor West NPDES permit for Outfalls 509, 009, 010 and 011:

*“At any time during the term of this NPDES permit, the permittee may request modification of Section 301(g) effluent limits for ammonia-N and total phenols. Such modified limits may be applied at Outfalls 509, 009, 010 and 011, or any combination thereof.”*

The above condition is similar to one included in the NPDES permit for ArcelorMittal Burns Harbor LLC that IDEM recently renewed.

Response 16: The above mentioned changes have been incorporated as one of the reopening provisions found in Part I.J of the permit.

**Comment 17: MINIMUM LEVEL (ML) for 2,3,7,8-TCDF**

The description of the Minimum Level (ML) for 2,3,7,8-TCDF in footnote [3] on page 8 of the permit correctly states the ML concentration as 10 picograms per liter (pg/L). However, the parenthetical clause at the end of this footnote identifies pg/L as parts per trillion (ppt) instead of parts per quadrillion (ppq). ArcelorMittal requests the NPDES permit be corrected as noted above.

**Response 17:** The above mentioned changes have been made.

**Ms. Jeanette Neagu, President, Save the Dunes and Mr. Lyman C. Welch, Water Quality Program Manager, Alliance for the Great Lakes submitted the following comments. Mr. Jesse Kharbanda, Executive Director, Hoosier Environmental Council, submitted a letter supporting the joint comments submitted by Save the Dunes and the Alliance for the Great Lakes.**

**Comment 18: Chromium Issues**

Health effects that can result from exposure to hexavalent chromium (also known as hex chromium or chromium-VI) include damage to the nose; anemia; intestinal and stomach damage; and cancer. The State of California is so concerned about this parameter that it has set a very low detection limit of 0.02 µg/L.

In 2010, ArcelorMittal West (TRI ID 46312LTVST3001D) reported through the Toxic Release Inventory (TRI) that 890 pounds of chromium compounds were discharged to the water, one of the highest amounts of chromium discharges reported in the Great Lakes Basin. IDEM has indicated that this chromium is removed from the wastewater in the Central Wastewater Plant and taken offsite for disposal, as might be evidenced by the 23,000 pounds of chromium compounds reported in the 2010 TRI as removed through this method. As a result of it being removed in the Central Plant, a specific provision was included in all of the permits that prohibits the discharge of chromium at any of the outfalls.

We don't know if it was an oversight or intentional, but there is nothing in these permits that requires monitoring to make sure this prohibition is being followed, making enforcement more difficult. This is particularly important since they have reported discharging 890 pounds of chromium compounds directly to the water as late as 2010.

A continuous monitoring system for chromium compounds should be required in all the permits where chromium discharges are prohibited. Recent studies and media coverage of detections of chromium-6 in tap water, in addition to EPA's current efforts to conduct human health risk assessments, also support the need for monitoring protocols for chromium in this permit. This is especially important because hexavalent chromium is more soluble and more mobile than the more naturally occurring chromium III, and also enters the water through airborne sources in the plant.

**Response 18:** While many facilities base their TRI data on monitoring data, others report estimated data to TRI, as the TRI program does not mandate monitoring. Various estimation techniques can be used when monitoring data are not available, and EPA has published estimation guidance for the regulated community. Variations between facilities can result from the use of different estimation methodologies. These factors should be taken into account



when considering data accuracy and comparability. It is also incorrect to equate the chromium compounds listed in the TRI as hexavalent chromium.

However, IDEM acknowledges the importance of verifying that hexavalent chromium is not being discharged from these facilities. Where required by federal effluent guidelines, total chromium limitations have been included in the proposed permits. Additionally, a prohibition against discharging wastewaters containing hexavalent chromium has been included in the proposed permit at potentially affected outfalls. IDEM will add hexavalent chromium monitoring at the potentially affected outfalls (Central Wastewater Treatment Plant) at a reasonable frequency in order to confirm that hexavalent chromium is not being discharged. IDEM doesn't require monitoring for "chromium compounds" as there are no water quality standards upon which to establish effluent limitations for "chromium compounds".

**Comment 19: Some Parameters May be Missing**

With respect to toxic pollutants, Clean Water Act Section 301 requires that NPDES permits "shall require application of "Best Available Technology" (BAT) to reduce pollutant discharges to the maximum extent "technologically and economically achievable," including "elimination of discharges of all pollutants" if it is achievable. Federal regulations promulgated by USEPA also require that "technology-based treatment requirements under Section 301(b) of the CWA represent the minimum level of control that must be imposed" in a NPDES permit. BAT is a stringent treatment standard that has been held to represent "a commitment of the maximum resources economically possible with the ultimate goal of eliminating all polluting discharges."

Technology-based effluent limitations (TBELs) are a necessary minimum requirement for a permit "regardless of a discharge's effect on water quality." Federal regulations require state permitting authorities to establish BAT effluent limits in individual NPDES permits on a case-by-case basis, using Best Professional Judgment (BPJ), "to the extent that EPA-promulgated effluent limitations are inapplicable." The use of the word "shall" in both the federal statute and regulations does not leave IDEM with any discretion as to whether TBELs should be established. Instead, TBELs must be established for every parameter reported in the TRI data. It is our contention that IDEM must set TBELs for all pollutants by determining BAT. Even if the ArcelorMittal facility is not discharging these pollutants in amounts that would implicate the applicable water quality standard or require a WQBEL, the Clean Water Act still requires that they be subject to TBELs.

The Clean Water Act requires that "the discharge of any pollutant by any person shall be unlawful" except, in pertinent part, if it is authorized by a NPDES permit. The Act further defines "discharge of a pollutant" to mean "any addition of any pollutant to navigable waters from any point source." Requiring effluent limitations for even small discharges of pollutants is consistent with the Clean Water Act's statutory goal of "elimination of discharges of all pollutants."

Accordingly, although some pollutants reported in ArcelorMittal's TRI reports may only be discharged in small amounts, they still constitute "discharges of a pollutant" that are illegal under the Clean Water Act unless subject to appropriate TBELs. IDEM needs to review the TRI and revise the draft permit to incorporate such missing TBELs before ArcelorMittal's NPDES permits can be lawfully renewed.

Response 19: For the reasons outlined in Response #18, the TRI is not appropriate data source for establishing permit effluent limitations.

Development of limitations for every possible pollutant which could potentially be present in the discharge is not feasible. Technology based effluent guidelines are not always established for every pollutant present in a point source discharge. In many instances, EPA promulgates effluent guidelines for an *indicator* pollutant or pollutants. Industrial facilities that comply with the effluent guidelines for the indicator pollutant(s) will also control other pollutants (e.g., pollutants with a similar chemical structure). For example, EPA may choose to regulate only one of several metals present in the effluent from an industrial category, and compliance with the effluent guidelines will ensure that similar metals present in the discharge are adequately controlled. Additionally, for each industry sector EPA typically considers whether a pollutant is present in the process wastewater at treatable concentrations and whether the model technology for effluent guidelines effectively treats the pollutant.

Comment 20: **Mercury Issues**

One of the most serious concerns we have with this permit is the schedule of compliance proposed for this facility to meet new effluent limitations for mercury. Mercury is an especially dangerous parameter of concern since it bioaccumulates in fish tissue, and can adhere to sediments in all the affected water bodies. Lake Michigan, in particular, does not have a ready ability to heal itself as it takes more than 90 years for its waters to recycle and turn over. In addition, more than adequate studies have been done that prove that sediments in this area contain conditions that are sufficient to alter the chemical composition of fish tissues to the extent that the human uses of fishery resources in that area are adversely affected.

(<http://www.fws.gov/midwest/GrandCalumetRiverNRDA/documents/Volume1.pdf>)

While the Great Lakes Initiative (GLI) allows Indiana to provide flexibility on compliance schedules, the key words are “shall not exceed five years or the term of the NPDES permit, whichever is less.” That does not automatically mean that 54 months (4.5 years) is the standard amount of time granted. The effluent limitations should come as no surprise to ArcelorMittal, and we just don’t see why it should take 54 months to ramp up to meet the standards.

It is our understanding that, as soon as the permit is approved, ArcelorMittal must in order of sequence:

1. Develop a Quality Assurance Project Plan (QAPP) within three months that identifies sources of mercury in the wastewater being treated.

- It is our belief that this QAPP should take into account a mass balance study of all sources of mercury including air, water and solid waste such as secondary wastewater sludge.
- Once the QAPP is approved by IDEM, how much time will then be allotted to identify those sources? Is it possible to negotiate this timeline within the permit?
- Will the QAPP be made available for comment by the public?

2. Then develop a Final Plan for Compliance (FPC) to achieve compliance with the final effluent limits.

- Will there be an opportunity for public comment on the FPC?

3. Implement the FPC within 24 months.

- 24 months seems too long. We request that the FPC be implemented in 12 months.

We also want to have some assurances that there is a high degree of certainty that all these plans and schedules are realistic and achievable.

Response 20: Part I.F of the permit outlines the procedure for achieving compliance with the final effluent limitations for mercury. That section dictates that the permittee submit a QAPP report to IDEM no later than 3 months from the effective date of this permit outlining, among other things, the methods with which the permittee will identify sources of mercury. Another report is due no later than 15 months of the effective date of this permit that includes the previous 12 months sampling data for mercury and any pollution prevention activities implemented. A second QAPP report is due no later than 27 months from the effective date of this permit that includes the previous 24 months sampling data for mercury, an evaluation of the pollution prevention activities and treatment technologies, any additional control measures put in place since the last report, and the anticipated date when the permittee will submit the FPC.

The proposed FPC will contain the source identification report and a plan for implementing any pollution prevention or treatment technologies to achieve compliance with the final effluent limitation for mercury no later than 30 months from the effective date of this permit. Follow-up reports are due no later than 39 and 48 months, respectively, identifying progress and milestones contained in the FPC. The permittee shall comply with the final effluent limitations for mercury as soon as possible, but no later than 54 months from the effective date of this permit.

The QAPP and FPC will become public documents. However, they will not be placed on Public Notice for review and comment by the public.

IDEM believes that implementing the FPC in 12 months is not a reasonable expectation due to the comprehensive analysis and critical examination required to be performed as part of the Schedule of Compliance and associated reports.

Comment 21: **Missing Total Maximum Daily Loads (TMDLs)**

It is amazing to Save the Dunes and the Alliance for the Great Lakes that IDEM reportedly spent \$1 million to complete TMDL assessments on the Grand Calumet in 2001, and then never developed the TMDLs. Wasteload allocations used throughout all the permits are not sufficient because they are looking at parameters on a case-by-case basis and not the whole stream. You are not considering the other sources that might be contributing to impairments in the entire AOC.

We request that the necessary TMDLs be developed prior to the next renewal for these permits; and we invite IDEM and USEPA to work with Save the Dunes to make sure this happens, just as we are working together to develop TMDLs for the Salt Creek

Watershed. TMDLs are a critical step to resolving impairments in the AOC; impairments that have far-reaching consequences beyond the AOC into Lake Michigan – and also impact a visitor's ability to enjoy the Indiana Dunes National Lakeshore.

Response 21: The IDEM Permitting Branch agrees that TMDLs are a critical step to resolving impairments in the AOC. There are many extenuating circumstances to be taken into consideration for TMDL approval. The Permitting Branch has no control over if and when TMDLs are developed and approved and must work with the most recent and applicable resources at their disposal.

In the event TMDLs have been developed and approved for the waterbodies which receive discharges from these ArcelorMittal facilities during the next permit renewal cycle, the information will be taken into consideration during the development of water quality based effluent limits and completion of RPE analyses. IDEM encourages Save the Dunes and other organizations to keep working with IDEM and EPA on projects such as the development of TMDLs.

Comment 22: **Thermal Concerns**

While we appreciate the in-stream sampling and modeling that has been done to prove that ArcelorMittal does not have a reasonable potential to exceed a water-quality criterion for temperature, it is our contention that continuous in-stream monitoring should be required as opposed to grab sampling. Grab samples are only as good as the sample. This is especially important since the Clean Water Act requires the permittee to demonstrate that the balanced indigenous community of aquatic organism is protected and maintained. We also need to know if US Fish and Wildlife, DNR and other staff were consulted during this study because thermal concerns have a major impact on impairments in the AOC.

Response 22: Based on multi-discharger thermal model, the discharges from these ArcelorMittal facilities do not have a reasonable potential to exceed a water quality criterion for temperature. Therefore, continuous monitoring is not justifiable. Under 5-2-11.5(e), the commissioner may require monitoring for a pollutant of concern even if it is determined that a WQBEL is not required based on a reasonable potential determination, therefore monitoring for temperature and thermal discharge was included in this permit. IDEM believes that sampling twice weekly at the selected outfalls and intakes is sufficient to provide representative data of the temperature output from the outfalls.

Comment 23: **Typographical Error**

On page 43, item #4, line #3 of the West permit, it should say "prevention," not "prevent."

Response 23: The above mentioned changes have been made.

Comment 24: **Procedure for Whole Effluent Toxicity**

An overall goal of the GLI is to have consistency among the Great Lake States. We understand that USEPA disapproved Indiana's WET procedure in 2000 and therefore WET testing procedures in this permit must conform to EPA guidance and national

standards in 40 C.F.R. 122.44(d)(1). IDEM must ensure that the WET procedures described in the permit comply with these federal standards to USEPA's satisfaction.

Response 24: IDEM's current WETT requirements have been reviewed and approved by IDEM's Toxicologist. US EPA has reviewed the WETT requirement as well and has no objections. Therefore, IDEM is confident that the program complies with federal standards to USEPA's satisfaction.

Comment 25: **Discharges to Lagoons and Ponds**

In the West unit permit Citizen's Summary (and also the Fact Sheet), there is discussion of Internal Outfall 111 and 211 discharging to the North Lagoon (see p. 9). Are these unlined "treatment facilities" or wetlands? Also, it is not clear what the North Pond on page 9 is referring to under Outfall 012 of the Citizen's Summary. Should this have said instead "North Lagoon?"

Response 25: The North Lagoon is considered a treatment facility. Page 9 of the Citizen's Summary mentioned above should have identified it as such, not the North Pond.

Comment 26: **Impact of New Treatment Systems**

On Citizen's Summary on the West facility permit (p. 8) it is noted that two new treatment systems have been installed for treatment of wastewaters from the vacuum degasser and continuous casting operations. Have these treatment systems led to improved water quality through more stringent pollution controls, which will be regulated at Outfalls 701 and 702?

Response 26: The new treatment systems at Internal Outfalls 701 and 702 were installed to specifically treat those respective wastestreams. The permittee installed these treatment systems to meet the BAT limitations from the federal effluent guidelines. It can be assumed that the installation of these facilities will aid in achieving the objectives of the CWA. Furthermore, the facility designed the treatment systems to achieve 'zero discharge'. This means that during normal conditions, there will be no discharge from these sources. However, stating that the use of these systems has definitively led to improved water quality lacks some qualifying statements (i.e. at the effective outfall, in the receiving water, in the general region, etc.).

Comment 27: **Bypasses**

On page 9 of the Citizen's Summary for the West facility it mentions that potentially 12% of Outfall 012 bypasses the No. 3 intake and directly enters the waters of the state. Please explain how this particular, daily, ongoing bypass is lawful.

Response 27: The use of the word 'bypass', as identified in the above mentioned comment, was poorly chosen. It should be noted that this does not imply a bypass as defined by NPDES standards. What was attempted to be conveyed in the Citizen's Summary was that approximately 12% of the effluent from Outfall 012 could potentially enter the waters of the state as opposed to being re-circulated through the facility via the No. 3 intake. The permittee is required to comply with the bypass conditions as outlined in Part II.B.2 of the permit.

Comment 28: **Phenols**

Save the Dunes and the Alliance for the Great Lakes would like to applaud IDEM for proposing that the variance request for phenol (4AAP) not be renewed in the West facility permit as stated in the Citizen's Summary and at the IDEM presentations. It does not appear that this same denial was in the other permits, however. Please clarify that for us.

Response 28: This comment incorrectly states that the phenols variance wasn't renewed in the West permit. The 301(g) variance request for phenols was renewed in the Indiana Harbor West permit. The variance for phenols was **not** renewed in the Indiana Harbor East permit. The variance renewal for the West facility was approved based on a review of the data available and the other qualifying factors identified in section 301(g) of the CWA.

Comment 29: In addition, we are wondering if any consideration might be given to using carbon filters in all the control technologies to reduce phenol pollution. For example, in the East Facility Permit, it is our understanding phenols are controlled using carbon filters that the blow down from Nos. 5 & 6 blast furnace recycled system is treated through clarifiers for solids remove and carbon filtration to control phenols and is then discharged to the Main Plant Recycle System through internal Outfall 613.

Response 29: The facility requested a 301(g) variance which is allowed under the CWA. This variance was previously granted and ArcelorMittal requested it to be renewed as part of this permit renewal. The appropriate documentation was submitted and reviewed by IDEM and based upon the federal requirements IDEM has incorporated the existing 301(g) variance in the West permit. This has been tentatively approved by EPA.

**Mr. Jim Sweeney, President, Izaak Walton League, PCC (Porter County Chapter), submitted the following comments.**

Comment 30: **Chromium**

ArcelorMittal reported through the Toxic Release Inventory (TRI) that 890 pounds of chromium compounds were discharged to the water of Lake Michigan. Reportedly it is removed from the wastewater and a provision was included in each of the permits that prohibit the discharge of chromium at any of the outfalls.

This is welcome but we have found no requirement that calls for monitoring to make sure this happens. A monitoring system should be required in all the permits where chromium discharges are prohibited.

Response 30: Please refer to responses #18 and #19 above to comments submitted by Save the Dunes and the Alliance for the Great Lakes.

Comment 31: **Mercury**

Mercury is an especially dangerous toxin because it bioaccumulates in fish tissue and can adhere to sediments in water bodies. One of the most serious concerns we have with this

permit is the schedule of compliance for these facilities to meet new effluent limitations for mercury.

We request that these new permits include a Final Plan for Compliance that will be implemented in 24 months that addresses all sources of mercury pollution.

Response 31: Please refer to response #20 above comments submitted by Save the Dunes and the Alliance for the Great Lakes.

**Comment 32: Total Maximum Daily Loads (TMDLs)**

IDEM reportedly spent \$1 million to complete TMDL assessments on the Grand Calumet in 2001, and then did not develop the TMDLs. Waste load allocations used in these permits are not sufficient because they are looking at individual parameters on a case-by-case basis and not the whole stream. Refer to the definition of TMDL. All sources must be considered.

TMDLs need to be developed prior to the next renewal for these permits. They are a critical step to resolving impairments in the AOC.

Response 32: Please refer to response #21 above comments submitted by Save the Dunes and the Alliance for the Great Lakes.

**Comment 33: Other Concerns**

The permits should require constant monitoring of all outfalls due to the potential for serious discharges for the entire range of pollutants and chemicals used at Arcelor Mittal. The Clean Water Act requires the permittee to show the ecology of the receiving waterway is protected.

Any impact of thermal discharge needs to be documented and corrected.

Section 301 of the Clean Water Act requires that NPDES permits “shall require application of “Best Available Technology” to reduce discharges to the extent “technologically and economically achievable,” including “elimination of discharges of all pollutants” if it is achievable.

The Clean Water Act requires that “the discharge of any pollutant by any person shall be unlawful” except if authorized by a NPDES permit. The Act further defines “discharge of a pollutant” to mean “any addition of any pollutant to navigable waters from any point source.” Requiring effluent limitations for even small discharges of pollutants is consistent with the Clean Water Act’s statutory goal of “elimination of discharges of all pollutants.”

Arcelor Mittal and the other factories have come a long way but still have a long way to go. Lake Michigan does not belong to them, it belongs to the public and your job is to make sure this incredible resource is protected for our use and for future generations.

Response 33: Constant monitoring for all outfalls for all pollutant and all chemicals is not feasible. In addition, the permittee demonstrates compliance with the CWA by taking representative samples of the discharge on a routine basis.

**Mr. Ted Oberc, Concerned Citizen, submitted a written statement on the issuance of the permit. IDEM hereby acknowledges receipt of Mr. Oberc's written statement, and is appreciative of his participation. IDEM made no to changes to either the permit or fact sheet in response, but took all comments into consideration.**

**During the public hearing, held in Gary, Indiana, on September 15, 2011, statements were read by Mr. Kevin Doyle, Environmental Manager, ArcelorMittal and Mr. Patrick Gorman, Indiana Steel Environmental Group Facilitator. Transcripts of the statements can be found at <http://www.in.gov/idem/5338.htm>**